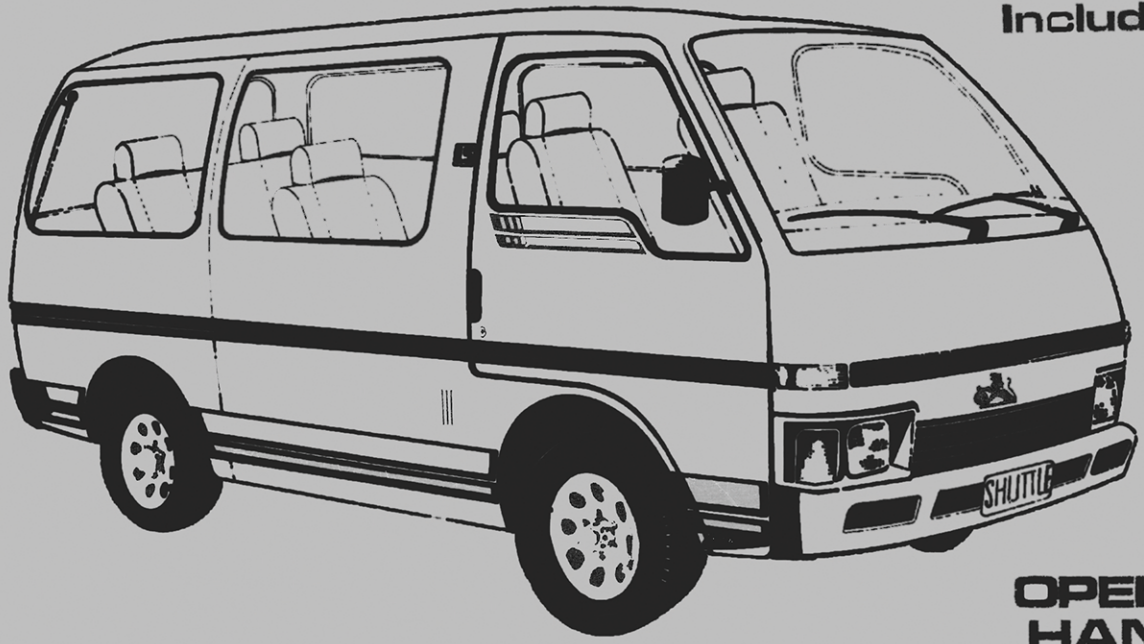
HOLDEN

SHUTTLE

Including **LS**



OPERATOR'S HANDBOOK

92020545

Vehicle Identification Certificate

Owner's Name .....
Address .....
Phone: Business.....Private .....
Town.....State.....Postcode.....
Reg. No.....Colour.....
Vehicle Model .....
V.I.N. (Vehicle Identification Number) .....
Body No.....Engine No. .....
Chassis No. for Service Identification—on G.V.M. Plate.....
Trans. No.....Trim No. .....
Rear Axle: Ratio(s).....Type .....

MAXIMUM GROSS VEHICLE MASS

The maximum gross vehicle mass rating is stamped on the GVM plate attached to the body. Vehicles loaded within this rating and properly maintained will repay the owner in maximum performance with minimum operating costs.

Registered Tare Weight .....
G.V.M.R. (Gross Vehicle Mass Rating) .....
Date of Acquisition .....
Odometer Reading .....
Selling
Dealer's
Stamp &
Signature .....

Refer to page 97 for Pre-Delivery Check and page 98 for Delivery Certificate.

OCTOBER 1982

Message from GMH

Thank you for choosing Holden. Your new Vehicle is the product of many years research and planning. We are very pleased and proud of the result—as we are sure you will be. To understand your new vehicle fully, please take the time to read through this handbook and keep it in the vehicle at all times for quick reference. Full understanding of your vehicle's performance, warranty and maintenance procedures will add greatly to your enjoyment. On behalf of all here at GMH, may we wish you and your Vehicle many years of happy motoring.

This handbook contains important information necessary for the good performance and maintenance of the vehicle. Please leave it in the vehicle at the time of resale to assist the new owner.

New Vehicle Warranty

GENERAL MOTORS-HOLDEN'S SALES PTY. LTD.

(INCORPORATED IN VICTORIA)

GENERAL MOTORS-HOLDEN'S SALES PTY. LIMITED

(INCORPORATED IN VICTORIA)

New Vehicle Warranty

GENERAL MOTORS-HOLDEN'S SALES PTY. LTD. HEREBY WARRANTS THAT IT WILL MAKE GOOD, WITHOUT CHARGE, ANY DEFECT WHICH APPEARS IN THE VEHICLE IDENTIFIED IN THE VEHICLE IDENTIFICATION CERTIFICATE FOUND ON THE INSIDE OF THE FRONT COVER.

Provided

1. the defect has been notified to an authorised GMH Dealer or Service Dealer:
   (a) before the vehicle has travelled a distance of 20,000 km, or:
   (b) within 12 months of the date of delivery of the vehicle to the first retail purchaser (or in the case of a Demonstrator vehicle within 12 months of the date when it was first placed into service by the Dealer)

   whichever comes first, and

2. the vehicle has been returned to an authorised GMH Dealer or Service Dealer

And

3. the Dealer has determined that the defect complained of *is* one of material or workmanship and *is not* caused by:
   (a) misuse or abuse of the vehicle such as by racing, rallying, overloading, etc. or by neglect
   (b) operation of the vehicle after it is known to be defective
   (c) accident or deliberate act
   (d) atmospheric fallout or flood, hail, salt, etc.
   (e) failure to carry out proper maintenance service
   (f) alteration or modification of the vehicle
   (g) the fitting of parts or accessories not marketed by GMH
   (h) any work carried out on the vehicle by someone other than an authorised GMH Dealer or Service Dealer,

BY THE DEALER (or as otherwise decided by GMH Sales) MAKING GOOD THE DEFECT BY REPAIR OR, AT THE OPTION OF GMH SALES, BY REPLACEMENT.

Excluded from this Warranty are

- defects in tyres or tubes (these being warranted by their manufacturers), and services such as engine tuning, brake adjustment, replacement of air and oil filters, etc. which are required as part of normal vehicle maintenance.

This Warranty applies only to vehicles operated in Australia and is given to the person who is entitled to possession of the vehicle whether as owner lessee or otherwise and is given in addition to all rights conferred by law on that person.

Owners of vehicles operated outside Australia should consult their local dealer regarding the warranty applicable to their vehicles.

Notice to Customers

No GMH dealer or other person is authorised or permitted to give or make any statement assertion or undertaking in relation to the quality performance characteristics descriptions or fitness for any purpose of any GMH product or in connection with the supply of any GMH product, which is at variance with any written statement assertion or undertaking on any of these subjects given or made by General Motors-Holden's Limited or General Motors-Holden's Sales Pty. Ltd. in its published sales literature, and neither company accepts any liability for any such unauthorised action.

General Motors-Holden's Limited and General Motors-Holden's Sales Pty Ltd have franchised dealers in many parts of Australia for the sale of service parts and the provision of service to owners of GMH's products. Every endeavour is made to ensure that such dealers carry adequate stocks of service parts, and are equipped to provide satisfactory service, but neither General Motors-Holden's Ltd. nor General Motors-Holden's Sales Pty. Ltd. makes any promise that such parts or service facilities will be available, or available at any specific location or any particular time.

GMH Parts and Accessories Warranty

General Motors-Holden's Limited warrants in respect of GMH parts and accessories required as replacement parts, that it will make good by repair or at its option by replacement any defect occurring in any such GMH parts and accessories within 3 months from the date of acquisition or in the case of a GMH part or accessory which has been installed in a vehicle by a GMH Dealer or Service Dealer before such vehicle has travelled a distance of 6,500 kms from the date of installation, whichever first occurs.

HOLDEN
SHUTTLE LS

Supplement to

HOLDEN SHUTTLE
OPERATOR'S HANDBOOK

IMPORTANT

THIS SUPPLEMENT MUST BE READ IN CONJUNCTION WITH THE SHUTTLE OPERATORS HANDBOOK.

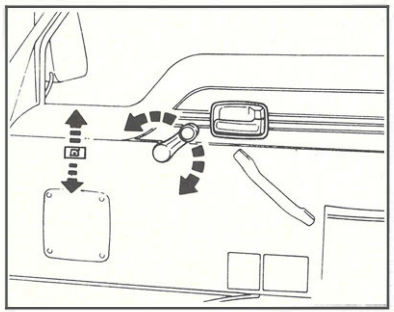
Windows

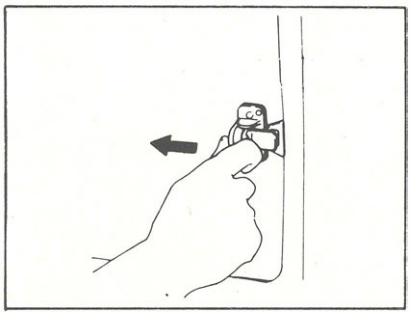
Power operated front passenger door window

L.H. front window can be operated by individual switches located in each front door. To raise the window, push the switch lever up. To lower the window, push the switch lever down.

Rear side window

Slide open the windows with the window lock depressed. The windows are automatically locked when completely closed.





Seats

(Refer page 19)

Seat Backs

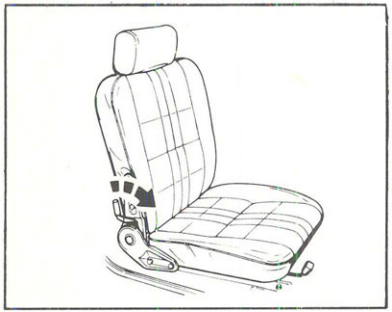
On all seats fitted except centre front seat, back inclination can be adjusted by use of release levers located on body side end of seats.

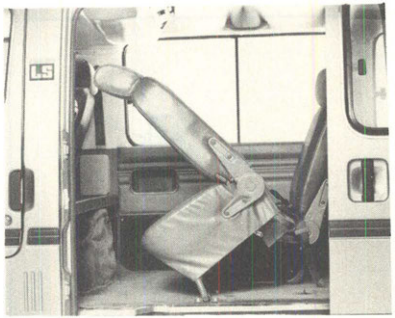
Access to Third Row Seat

Access to third row seat is achieved by the release of the second row left hand seat and hinging seat assembly forward. Release is achieved by moving release lever forward.

Sleeping Facility

Both second and third row seat backs can be fully reclined to form a flat bed after head restraints have been lifted out.

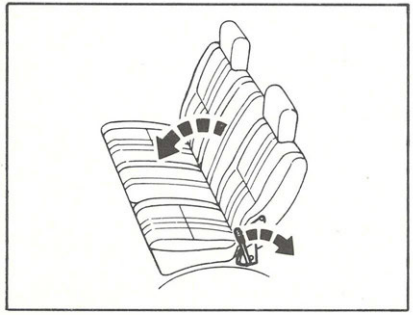


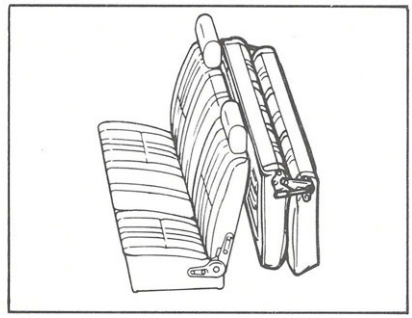


Folding Rear (Third) Seat for extra Luggage Space

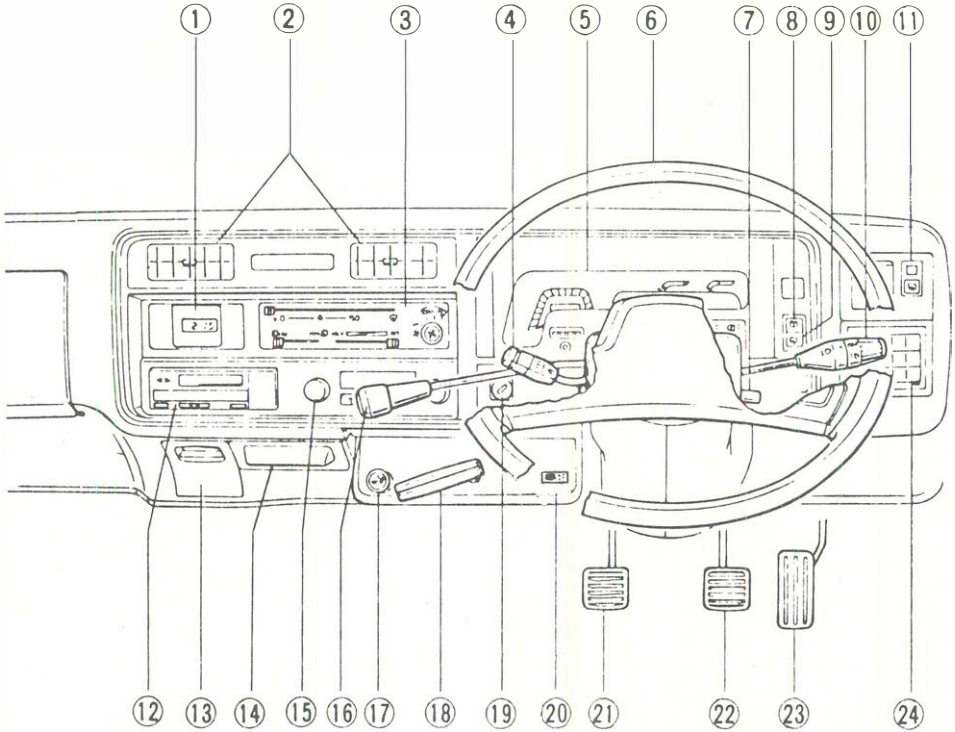
Move the lever at the left side of the seat rearward and fold the seat back fully forward to lay on the seat. Release the lever under the rear of the seat and fold the seat (with the folded seat back) forward to an upright position. Set the two retaining levers at both sides of the seat into the fittings provided. Place the seat belts under the seatbelt covers and fasten.

To reset the seat, reverse the above operation, making sure you place the seat belts in their normal position.





CONTROLS AND INSTRUMENTS



① Electric digital clock
② Centre ventilator grilles
③ Heater, air conditioning and ventilation control panel
④ Windshield wiper and washer control lever
⑤ Instruments and indicator lights
⑥ Steering wheel
⑦ Hazard warning switch
⑧ Back door window washer switch
⑨ Back door window wiper switch
⑩ Combination light switch lever
⑪ Back door window demister switch
⑫ Stereo cassette deck
⑬ Fuse box
⑭ Ash tray
⑮ AM/FM radio
⑯ Transmission gearshift lever
⑰ Cigarette lighter
⑱ Parking brake lever
⑲ Rear floor heater switch
⑳ Remote control rear door lock
㉑ Clutch pedal
㉒ Brake pedal
㉓ Accelerator pedal
㉔ Side ventilator grille

Rear Door Remote Control Lock

In addition to the key lock facility fitted to vehicle the LS wagon rear door can be locked or unlocked by remote control from instrument panel.

Move the lever to the desired indicated position for locking or unlocking the rear door.

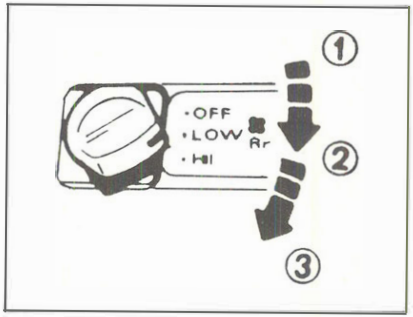
Rear Floor Heater Control Switch

When this switch is turned on the fan delivers outside air from the heater outlets under the second row seat. It has two fan speed settings High and Low.

Dome Light

The dome light is operated by pushing the lens towards its base. A second push will turn it off.

The dome light is also activated when the doors are opened. A 10 second time delay occurs on closing the door.



Electric Digital Clock

Time is displayed when the starter switch is in the "ON" position. To reset the time, open the cover and push the switches as necessary. The function of each switch is as follows:

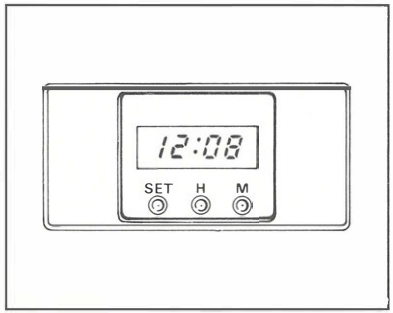
"M" : Minute indication is advanced rapidly while this switch is pushed.

"H" : Hour indication is advanced rapidly while this switch is pushed,

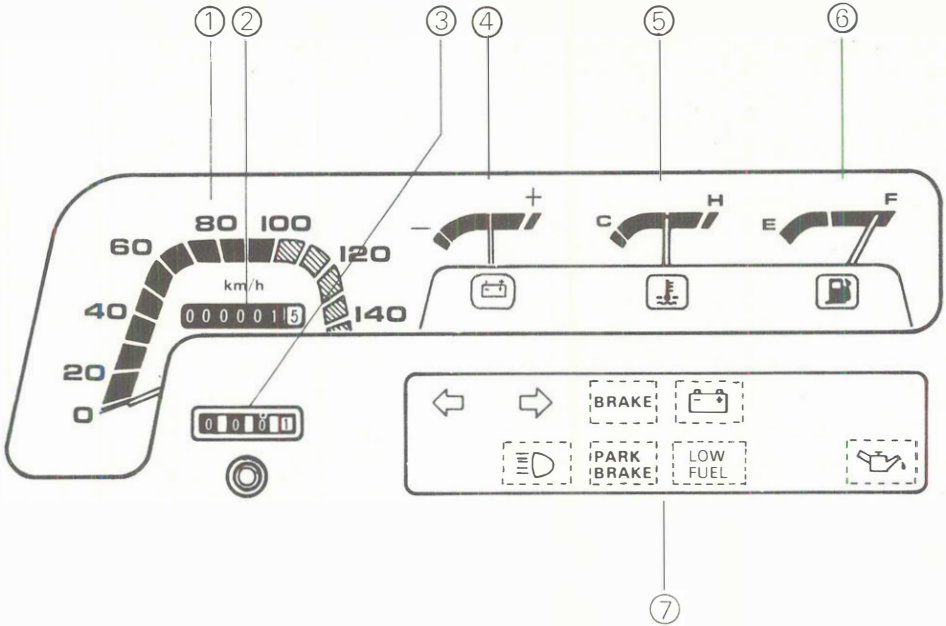
"SET" : Minute indication is reset to "00" when this switch is pushed.

If the reset switch is pushed when the display is 1:01-1:29, the clock reset hour will be reset to 1:00, when the display is 1:30-1:59, the clock will be reset to 2:00.

The clock does not display seconds, but starts from zero second when the "SET" switch is pushed.



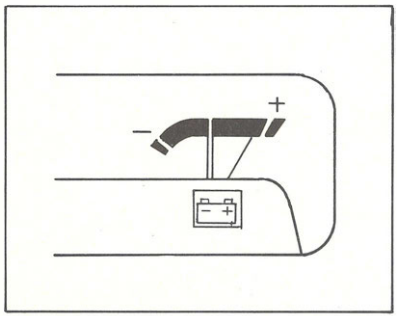
meters and indicator lights



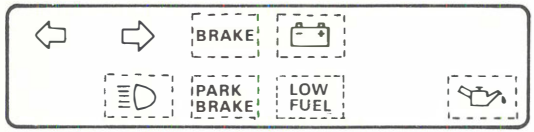
① Speedometer
② Odometer
③ Trip meter
④ Voltmeter
⑤ Temperature gauge
⑥ Fuel gauge
⑦ Indicator lights

Voltmeter

The Voltmeter indicates the condition of the electrical charging system. Normally the needle will remain near the centre of the indicator area. Needle movement to either side will indicate the charging system requires checking. If this occurs see your GMH Dealer as soon as possible.



Indicator Lights



Turn signal indicator lights

Oil pressure indicator light

Generator indicator light

High beam indicator light

PARK BRAKE Parking brake indicator light

LOW FUEL Low fuel indicator light

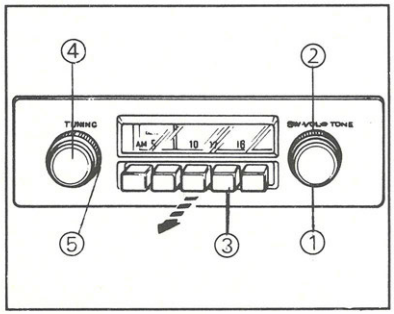
BRAKE Brake fluid level indicator light

AM/FM Radio

1. ON/OFF switch and volume control:
   Push the volume control to switch the receiver on, a second push will switch the receiver off. Turn the control to increase or decrease volume.
2. Tone Control:
   Turn knob to control tone.
3. Preset Tuning Buttons:
   Push the preset tuning button with the symbol "FM" to tune into a preset "FM" station. To tune into a desired "AM" station push in the preset button without the "FM" symbol.

Preset tuning buttons can be preset in the following manner:

(a) Unlock the button by firmly pulling outwards.



(b) Accurately tune the receiver to the required station with manual tuning knob.

(c) Lock button to the station by pushing in slowly and completely.

4. Manual Tuning Knob:
   With the preset tuning button set to desired band, the receiver may be tuned at any time by means of manual tuning knob, this will not affect the pre-selected stations.
5. Balance Control:
   Turn to balance the sound between the left and right hand speakers.

Stereo Cassette Tape Deck

1. Cassette Tape Deck Operation

To play a tape turn the radio on and insert a cassette into the cassette deck with the tape side forward, into the opening. The radio reception will switch off when the cassette is fully in. The tape direction indicator will turn on to show the direction of the tape.

2. Program Button

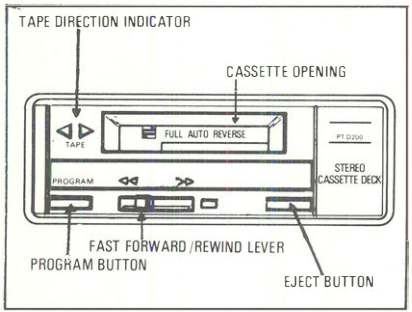
When the program button is depressed, the running direction of the tape and the tape direction indicator is reversed.

3. Fast Forward/Rewind lever

To fast feed the tape in the forward direction, move the "FF/REW" lever in the direction of the tape indicator. The tape reverses direction when the lever is moved in the opposite direction.

4. Eject Button

To stop the tape playing, depress the eject button. This will eject the cassette partially and the system mode is switched automatically to radio reception.



Rear Air Conditioner

(Refer pages 36 and 37)

The rear air conditioner is a recirculating unit. Both front and rear units only operate when the air conditioner switch on the dashboard is pulled to the operating position. The rear unit can be switched off with the fan switch in off position.

There are two controls on the rear air conditioner.

1. Fan Switch. This has an off position and three speed settings. Fan does not operate with air conditioning system turned off.

2. Temperature Control Switch. This is variable and controls cooling output. With the switch in the anti-clockwise position maximum cooling is achieved. As the switch is turned clockwise the air is cooled less.

3. Vents

There are two kinds of air vents incorporated in the unit. The two round vents at the ends of the face of the panel can be used for direction only and cannot be closed off.

The four oblong vents are adjustable for direction and can be closed off.

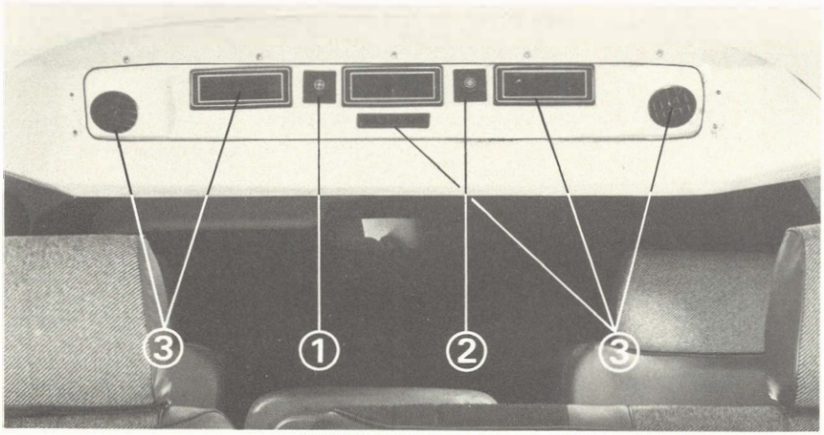


Table of Contents

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This handbook applies to the Holden Shuttle vehicles, and explains all equipment including options. Therefore you may find reference to some equipment not installed on your vehicle.

Section 1: Getting to know your Shuttle 1
Safety Checklist, Running In, Fuel Economy Tips, Safe Driving Hints, Diesel Engines, Keys and Locks, Windows, Seat Belts, Seats, Mirrors.

Section 2: Starting and Operating
Controls and Instruments, Steering Column Controls, Transmission, Switches, Instruments and Lights, Floor Controls, Radio, Heating and Ventilation, Air Conditioning, Starting and Driving.

Section 3: Emergencies, Safety and Emission Spare Wheel Storage, Wheel Changing, Emergency Starting, Towing, Overheating, Warning Lights, Diesel Fuel Filter, Emission Control System.

Section 4: Owner Relations and Authorised GMH Dealers
Owner Relations, Owner Relations Managers, Authorised GMH Dealers.

Section 5: Specifications
Serial Numbers, Model Identification, Vehicle Dimensions, Engine Data, Capacities, Clearance and Settings, Fuses, Headlamps and Bulbs.

Section 6: Appearance, Maintenance and Service Caring for your vehicle, Washing Tips, Interior Cleaning, Service and Maintenance, Oil, Cooling System, Lubricants, Tyres, Owners' Responsibility, Maintenance Schedules, Service Operations, Labour Times.

HOLDEN GMH

For proper maintenance of your vehicle use only General Motors parts, which are marketed under one of these trademarks. When it comes to servicing, remember that a GMH Dealer has the trained personnel and specialised equipment to correctly service your vehicle.

All illustrations and specifications contained in this handbook are based on the latest product information available at time of publication approval. The right is reserved to make changes, at any time, without notice, in prices, colours, materials, equipment, specifications and models, and to discontinue models. Check with your GMH Dealer for complete information.

Section 1: Getting to Know your Shuttle

Safety Checklist

Follow these simple steps before driving your new Shuttle. They will help make your motoring safer and more enjoyable.

Before getting in

Check that the windows, mirrors and lights are clean.

Check the tyre inflation.

If you intend to reverse, check that the area behind you is clear.

Before driving off

Be sure you understand your vehicle and know how to operate it safely.

Be sure that all doors are securely fastened.

Position your seat for comfortable driving.

Adjust both rear vision mirrors.

FASTEN SEAT BELTS.

Check that the warning indicators light up when you turn the key to start the engine.

Release the parking brake.

If you are reversing again check that the area behind you is clear.

Caution: Never leave loose articles inside the vehicle — they may become dangerous projectiles if you have a collision or stop suddenly.

Maintenance for safety

The following items require regular attention in the interests of safety. If anything goes wrong with any one of them, an authorised GMH Dealer will help you.

- BRAKES.
- HORN.
- ALL LIGHTS.
- REAR VISION MIRRORS.
- SEAT BELTS.
- GLASS AREAS.
- EXHAUST SYSTEM.
- WINDOWS.
- STEERING AND WHEEL ALIGNMENT.
- WINDSHIELD WIPERS AND WASHERS.
- TYRES.
- SUSPENSION.

Running In

These days, there's no need to follow a rigid running-in schedule. However, if you observe a few simple points during the first few hundred kilometres of driving, you will add to the vehicle's future performance and economy.

For the first 1000 kilometres, don't go over 85 km/h with a Diesel Engine or over 100 km/h with a Petrol Engine. Up to 1500 kilometres, avoid driving at any one speed—either slow or fast—for any length of time.

Include some higher speeds in your driving. This helps prolong the life of parts and helps with fuel and oil economy. But never drive at high speed until the engine is thoroughly warm.

Full throttle acceleration is not recommended before the vehicle has done 3000 kilometres.

For the first 500 kilometres, heavy braking should be avoided, except in the case of emergency since brake misuse during this period could impair future braking efficiency.

Also avoid heavy prolonged pulling in low gears for first 400 kilometres.

Maximum allowable speed in each gear in km/h during Running-In period.

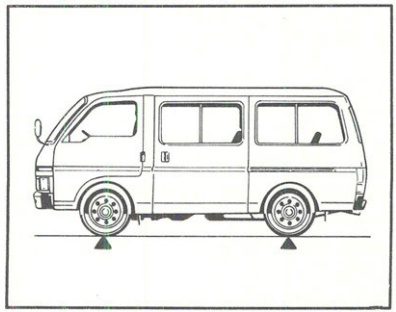
Model/Gear position	1st	2nd	3rd	4th	5th
WFR11 (Petrol engine)	25	40	70	100	100
WFR51 (Diesel engine)	20	30	50	85	85

OVERLOADING

Overloading not only shortens the service life of your vehicle, but also creates serious potential safety hazards.

The weight of the payload must be limited within the GVM rating and distributed over the front and rear axles so as not to exceed the axle capacity.

Refer to the SPECIFICATIONS' SECTION for GVM and Axle capacity.



Fuel Economy Tips

How you drive, and where you drive have an effect on your fuel economy. The following pointers will help reduce your fuel bill.

Avoid:

Hard Acceleration.

Excess Loading Weight.

Stop-Start Driving. Plan your trips ahead.

Excessive Speed. You will save on your fuel bill by driving at 80 km/h instead of 110 km/h.

ENGINE IDLING:
If you have to wait for more than a few minutes, turning off the engine will conserve fuel.

HARD DRIVING IN BUILT UP AREAS:
Energy is wasted as heat when braking. Hard driving up to stopping points is wasting fuel, as energy in the form of fuel is needed to accelerate again.

AIR CONDITIONER OPERATION:
Don't use your air conditioner unnecessarily. By using correct vent settings acceptable body comfort can be obtained in cool and moderate temperature conditions at the same time achieving better engine performance and economy.

Check:

Air Cleaner Element. A dirty air cleaner element reduces engine efficiency. Replace it at the required intervals.

Engine Tuning. An out of tune engine cannot give good fuel economy.

Tyre Inflation. Under inflation wastes fuel.

Wheel Alignment. Incorrect alignment makes the front wheels drag and puts an extra load on your engine.

Safe Driving Hints

Important

These items are listed as a safety reminder to you. The appropriate section of this handbook should be referred to for a more detailed explanation.

Carbon Monoxide

Avoid inhaling exhaust gases because they contain carbon monoxide, which is colourless and odourless. Carbon monoxide is a dangerous gas that can cause unconsciousness and is potentially lethal.

Ensure that rear door is closed and that door opening seals are not damaged or displaced.

Seat Belts

Various road laws require the wearing of seat belts. It is important that the habit of using these should be developed by yourself and others in the vehicle. In the interest of safety seat belts should be checked regularly. Your Dealer will inspect and check the belts for you as part of the normal Maintenance Plan Service. Never attempt to modify or change the seat belt away from the original specification as this will affect the operation of the belts and reduce their effectiveness, in preventing injury, in an accident.

Anti-Theft Ignition Steering Lock

DO NOT turn the ignition switch away from the ON position while the vehicle is in motion as this renders ineffective any power assisted equipment fitted to your vehicle.

Never turn the key to lock position while the vehicle is in motion **as this will lock the steering of the vehicle and render it inoperative.**

Brakes

Driving through water may affect performance. Applying the brakes lightly will indicate whether they have been affected. To dry them quickly, lightly apply the brakes while maintaining a slow forward speed with an assured clear distance ahead until brake performance returns to normal.

Brake pedal travel should not be obstructed by ill-fitting floor mats or other interfering material under the pedal.

Power Assisted Brake

Power assisted brakes which are fitted to your vehicle utilise vacuum from the engine when it is running. Do not let the vehicle run down steep grades without the engine running. **Never** coast with the engine switched off.

Tyre Traction

A decrease in driving, cornering, and braking traction occurs when water, snow, ice, gravel, or other material is on the road surface. Driving practices and vehicle speed should be adjusted to the road conditions.

Cooling System

If the cooling system is hot, the radiator cap must not be removed quickly — it should be rotated slowly to the first stop, which permits the pressure to release slowly through the overflow pipe. It is advisable to cover the cap, with an old rag or cloth to avoid possible scalding.

Loose Articles

Do not leave a loose load or articles inside the vehicle. Stow articles by tying down if necessary.

Petrol Fumes

Always stop the engine and do not smoke or allow open flames or sparks near the vehicle when refuelling. If petrol fumes are noticed while driving, the cause should be determined and corrected without delay.

The Diesel Engine

We know you will be anxious to give your new Diesel a trial run, but wait just a minute! First, please be patient and read this handbook. Read it carefully, even if you have had a diesel equipped vehicle before. Make quite sure you haven't missed anything.

The diesel engine is quite simple and straightforward really, and it has a number of advantages which make it particularly suited for Road Vehicles. Most vehicle users nowadays are familiar enough with the petrol engine, and the diesel is no more complicated or difficult to understand than this. Yet there have been certain misconceptions about it, including the notion that the fuel injection pump is a "box of tricks"—it is not!

The diesel engine has neither carburettor nor electrical ignition system. The fuel injection equipment which takes their place is totally enclosed and weatherproof, and this in itself is one of the greatest advantages of the diesel—even if left out in all weathers, damp or rain will not affect starting.

Another false idea is that, because the diesel runs on fuel oil, it will operate on creosote, sump drainings or other waste products. It will not! Fuel oil, like petrol, is produced by the refineries to a definite specification, for use in high speed engines such as the one in your new vehicle. To use any fuel other than of the brands of the well known companies is to ask for trouble. It is completely false economy, for consistent fuel quality and cleanliness are all-important in successful diesel operation.

THE ENEMY OF THE DIESEL ENGINE IS DIRT IN THE FUEL

This point deserves further explanation. The diesel is a hard-working engine that will give you long trouble-free service, as long as you keep the fuel really clean—not only free from large pieces of scale, sand or other dirt which the fuel filters or strainers will keep back, but free from dust, the fine dust which floats about in the air in dry weather. This fine dust is abrasive, and if it gets into the fuel it can cause rapid wear of the essential parts of the injection equipment. Your vehicle is fitted with a special filter which will prevent fine dust from passing into the pump—but let us explain why cleanliness is so important.

The fuel injection equipment comprises the injection pump itself, the injectors, and the filters. The pump and injectors are very carefully made, high-precision units, designed and built to perform a duty which is quite an arduous one. The pump is a sturdily built unit and has to supply the exact amount of fuel required to each cylinder—a droplet about the size of a pin's head for each firing stroke—and it operates at extremely high pressures. It has to inject hundreds of times a minute, and the amount of fuel must be under the instant control of the throttle or of the governor. The pump plungers are small and fit their housings perfectly—they have surface finishers and fits of the finest standard obtainable by

modern engineering methods. Since the pump operates in fuel oil, the wear of these precision parts is negligible and the pump will continue to do its work perfectly, unless dirt gets in. When that happens you can imagine the effect of fine grit on those beautifully polished surfaces, when the fuel pressure is something like 38,000 kPa.

Now you will see how important it is to keep the fuel clean. Any abrasive dirt carried into the pump with the fuel will scuff and score the working parts—even the finest dust will damage the fine surfaces beyond repair. Worn components mean inefficient pumping, irregular deliveries to the various cylinders, bad running and poor starting.

The filter fitted between the fuel tank and the injection pump is provided to prevent this trouble. Gauze filters, however fine, are completely useless for diesel work, and a good filter is essential. The filter deserves a little special attention—we will mention it again later.

The injector nozzles, too, can suffer damage from dirt or dust in the fuel. The nozzles, which spray the fuel into the combustion chambers, operate against very high compression pressures, and, like the pump plungers, are high precision jobs. To enable the nozzle to break up the small charge of fuel into a finely atomised spray so that it will mix thoroughly with the air compressed in the chamber and give good combustion, the holes in the nozzle are very small. A needle valve fits in the nozzle and closes it except while injection of the fuel is actually taking place. The needle must fit the nozzle and valve seat perfectly, and it is held to the seat by heavy spring pressure. A very small amount of fine grit or abrasive dust in the fuel can cause sufficient scuffing or wear to upset the nozzle entirely, causing knocking, uneven running and smoky exhaust.

Again, clean fuel is the answer. See that the engine gets clean fuel, and you won't have any trouble.

Now, what can you do to ensure that your fuel is clean, and stays clean? The only way that dirt can get into the fuel system of a vehicle in everyday use is through the fuel tank filler. It goes in with the fuel.

If you have to store your own fuel, storage tanks must be clean at the outset, and NOT galvanised. Fuel tanks must be covered so that dust and water cannot get in and scale will not form. The storage building should be clean and have a good floor. Take a pride in keeping the place spick and span—you will find it pays. If you are installing a new tank, talk to your fuel supplier who will give you good advice.

We recommend refuelling through a hose, the nozzle of which should be carefully wiped before use.

Should any fuel be spilt on tank or utensils when refuelling, wipe it up right away with a clean cotton rag, free from fluff. You see, fuel oil does not evaporate as petrol does and, if left, will gather dust and dirt from everywhere, Don't use cotton waste, the fluff from which will surely get into the fuel tank. *And be careful where you put down the fuel tank cap*—see that it does not pick up dust or grit. (This is perhaps the way that most dirt gets into the system.)

Diesel (continued)

CLEANLINESS IS THE FIRST CARE WHEN REFUELLING

Some of these points may sound a little tedious—but start off right and take these sensible precautions every time—they soon become a habit and no trouble. You will be amply repaid in the service you get from your vehicle.

Now, in spite of all your care, a certain amount of dirt will get into the fuel. Look at any shaft of sunlight and see the countless dust particles floating in the air. To cope with this fine dirt, a small amount of which is unavoidable, the diesel engine is provided with a special fuel filter, situated in the fuel line between the fuel tank and the injection pump. The filtering element was formerly of fine cotton cloth or felt (in some cases these may still be in use), but the most efficient elements today are of a specially prepared paper. The paper element filter is now standard equipment on most vehicles. In scientifically conducted tests it gave up to six times the life of the injection pump than that obtained with the old type of filter.

Periodically, as dirt collects, it becomes necessary to service the fuel filter. For detailed instructions of the correct procedure, refer to page 49. We can give you a few "golden rules" about the job. It will be obvious that the cleaner the fuel is in the first place, the less chance there is of the filter becoming choked, it is not so much by solid impurities, as by waxy sludge which is present to a varying degree in all fuels, no matter how clean. The life of the filter element depends therefore on the amount of fuel passed through it, and on the particular grade of fuel used—some fuels in some conditions are more prone to waxy deposits than others. **Systematic checking and cleaning of the fuel system at the recommended intervals can prevent malfunction caused by plugged (blocked) or burnt injector nozzles and may obviate premature injector overhaul or replacements.**

The factors which can affect the performance of diesel engine injectors vary so much that it is impossible to quote a service interval that will meet all conditions, but it is recommended that the inspection intervals should not exceed 6 months or 10,000 kilometres.

Depending on the operating conditions, the cleanliness and quality of the fuel, and the condition of the engine, the injectors may require servicing at more frequent intervals.

The fuel pump and the injector nozzles will continue to work properly for very long periods as long as they are supplied with clean suitable fuel. As long as they are working properly, leave them alone. The overhaul, maintenance and adjustment of injection pumps and nozzles is a specialised job, requiring special tools and test equipment, and should be carried out by a trained service engineer. Once again, this Owner Handbook is your best guide.

Finally, may we repeat—keep the fuel clean and your fuel injection equipment will give you trouble-free service. If the fuel pump and nozzles do not appear to be working properly, see your GMH Dealer.

Your new vehicle will be fitted with the usual electrical equipment: a battery, starter, alternator-regulator and lighting equipment, etc.

A few elementary points about the electrical equipment may help. First, the same sound general principle—keep it clean! This will go a long way towards avoiding trouble. Read this Owner Handbook carefully; it will tell you what should be done and when attention may be necessary.

A diesel engine takes quite a bit of turning over for starting because it has a very high cylinder compression, and this is one good reason for keeping the electrical equipment in good order.

Let us begin with the alternator: it must be able to charge the battery properly or it will soon be "flat" as starting imposes a very heavy load on the battery.

Make sure that all electrical connections are clean and tight. A smear of petroleum jelly on the connections will prevent corrosion.

Make sure that fuel oil is not spilled over the alternator when adjustments are made to the fuel pump or it may cause an electrical breakdown. Remember, prevention is better than cure. Check the alternator from time to time to see the armature commutator is free of oil.

The introduction of alternators, has brought about the necessity for you to ensure that these products are not damaged by reversing electrical connections.

As the battery negative lead is connected to earth, care must be taken to ensure that the battery is always connected correctly. This is known as the negative earth system.

Also it is most important to remove the battery leads when charging a battery, as it only requires a fraction of a second of reverse polarity to completely ruin semi-conductor equipment.

With the electric starter there is one very important point which must be emphasised—NEVER touch the starter button while the engine is running. This could cause considerable damage and put the starter out of commission.

Please read the Battery section of this Owner Handbook very carefully. (Refer page 85.)

How a Diesel Engine Works

The diesel or compression-ignition engine resembles the petrol engine more closely than any other type. It is another form of the reciprocating internal combustion engine. The diesel is widely employed in commercial vehicles, ships, railway engines and as yet to a lesser degree in cars and light commercial vehicles.

In the diesel engine, only air enters the cylinder on the intake stroke and this air is compressed on the compression stroke. Compression ratios range from 16:1 to 25:1. This produces pressures of about 4,000 kPa at the top of the compression stroke. When air is rapidly compressed to this pressure it reaches a temperature of about 550°C. This is sufficient to ignite the fuel oil which is sprayed into the heated air. No separate ignition system is required because the oil is ignited by the heat created by compressing the air. The fuel used is closely related to petrol, but it is a heavier type of hydrocarbon.

Just prior to the top of the compression stroke, a precisely measured amount of fuel is injected into the combustion chamber in the form of a fine spray, at a pressure of 9,800 to 24,500 kPa. It ignites instantly and continues to burn as long as fuel is sprayed into the combustion chamber. The expanding gases force the piston down on the power stroke and they are expelled on the exhaust stroke.

The compression-ignition engine is considerably more economical to operate than a petrol engine because the high compression ratio assures better thermal efficiency.

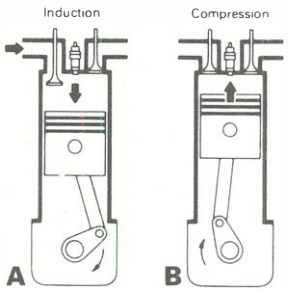
In the petrol engine, where a mixture of air and fuel is compressed, the highest allowable compression ratio is about 10:1 with commercially available fuel. When the compression ratio is increased over 10:1 knocking results.

On the other hand, the diesel engine requires a much higher compression ratio to generate the high temperatures needed for fuel ignition. This creates better thermal efficiency.

How a Diesel Engine Works

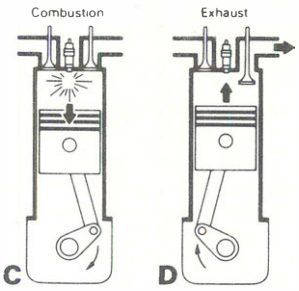
A With the Diesel fuel injection system, air is inducted into the cylinder by the piston moving down.

B The air is then compressed at a ratio of about 20.0:1.



C The fuel injection nozzle injects the diesel fuel into the cylinder. With the highly compressed air, combustion then takes place.

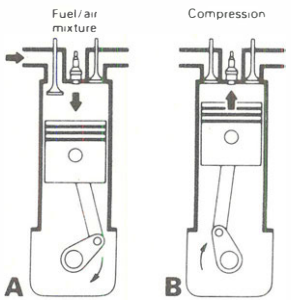
D Exhausted gases are then expelled.



How a Petrol Engine Works

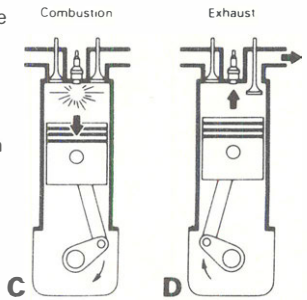
A The petrol and air mixture is fed into the combustion chamber through the carburettor.

B The petrol/air mixture is then compressed at a ratio of about 8.5:1.



C The spark plug, fired by the electrical system, ignites petrol/air mixture for combustion.

D The exhaust gases are then expelled.



Keys and Locks

Your vehicle is fitted with a locking system which provides security for all doors.

Keys

The code number of each key is stamped on the key. Record the key numbers and keep the numbers in a safe place such as your wallet. NOT IN THE VEHICLE.

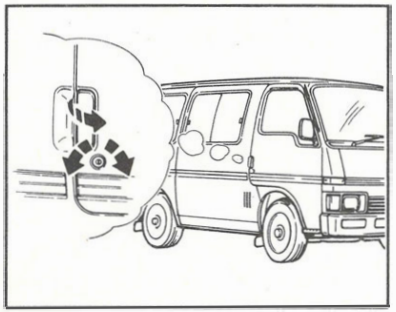
In the event the original keys are lost, duplicates can be made by your dealer using the key code information.

Doors

Front door handle

The doors can be opened by pulling the outside door handle.

Doors can be locked by inserting the starter switch key in the door key lock and turning it.



Front door lock (Outside)

The doors can be locked from outside without using the key by setting the door lock knob on the inside of door and closing the door with the outside handle pulled outward.

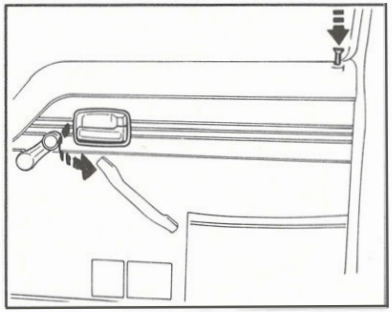
Be careful not to lock your keys in the vehicle.

Front inside door handle

The doors can be opened by pulling the inside door handle.

Front inside door lock

The doors can be locked by setting the door knob after closing the door.



Before driving, be sure that the doors are closed and locked, especially when small children are in the vehicle.

Sliding door handle outside

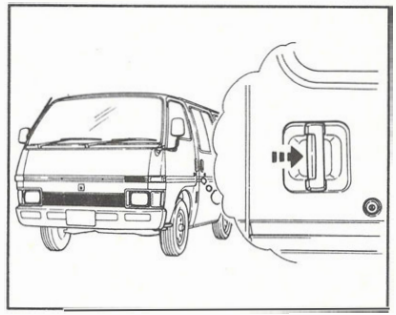
The door can be opened from outside by pulling the handle.

Sliding door lock (Outside)

The door lock on the sliding door can be locked or unlocked by turning the key.

Sliding door handle inside

The door can be opened from inside by pulling the handle.



Sliding door lock (Inside)

The door can be locked by setting the door knob before or after closing the door. *Before driving, be sure that the door is closed and locked, especially when small children are in the vehicle.*

Back door

The back door can be locked or unlocked by turning the key. The back door can be opened by pulling either handle at the right or left hand side. To close, lower it carefully.

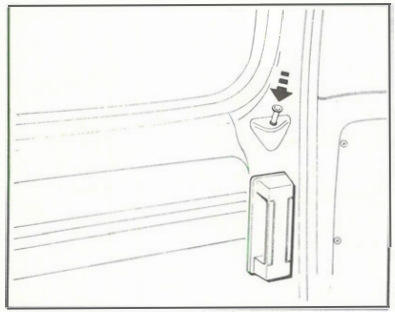
A Hint

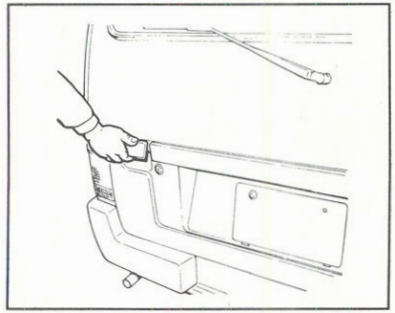
Door locks may ice up in cold weather. If this happens, warm the key before you insert it. You may have to do this several times.

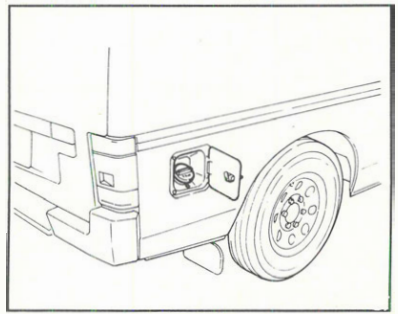
Fuel tank filler cap

The vehicle is equipped with lockable fuel filler door which can be unlocked with starter key.

After refuelling, check to be sure the fuel filler door is locked up properly.







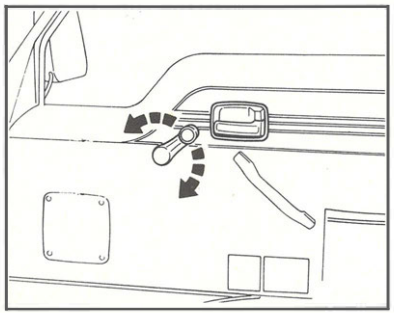
Windows

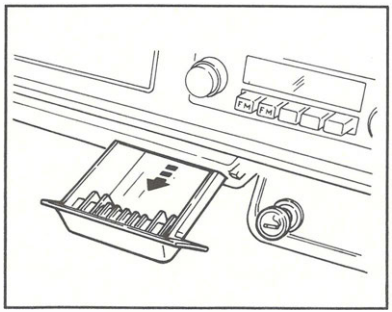
Regulator handle

Turn the window regulator handle to raise or lower the door windows on the front doors.

Ash tray

To use, pull out the tray. To clean, remove the tray by pulling it while depressing the entire tray.





Seat Belts

Study this section carefully. It is important that you understand how to correctly wear a seat belt. You should also ensure that all occupants wear a properly adjusted seat belt whenever the vehicle is moving.

Care of Seat Belts

Keep the belts clean and dry. Clean with a mild soap solution and lukewarm water. Keep sharp edges and damaging objects away from the belts.

Periodically, inspect the belts, buckles and anchorage points. Damage or fraying that could lessen the effectiveness of the system should be eliminated by replacing the belt assemblies. Do not bleach or dye the belts since this can cause severe loss of strength as also will cause contamination of the webbing with polishes, oils or chemicals—particularly battery acid.

Using Seat Belts

Various road laws require the wearing of seat belts. It is important that the habit of using these should be developed by yourself and others using the vehicle.

The adjustment and operating instructions are detailed in this Section together with the Seat Adjustment; it being important that both positions be comfortable in order that the driver may devote his entire attention to the job of driving and observing the road.

Your GMH Dealer will be pleased to advise you about the various types of child restraints available.

Children should be belted in at all times.

Never use a child restraint as an adult seat belt—it will not take the extra weight.

Releasing Belts

To release the belts: press the release button and allow the belt to retract. Check that it fully retracts without twisting or turning.

Safety Hints

Check seat belts regularly. Your GMH Dealer will do this as part of normal Guardian Maintenance.

Adjust seat belts firmly. A loose belt is no help at all. Seat belts must be replaced if they have been in use during a severe impact — even if there's no obvious damage.

Don't wear a belt with twisted straps.

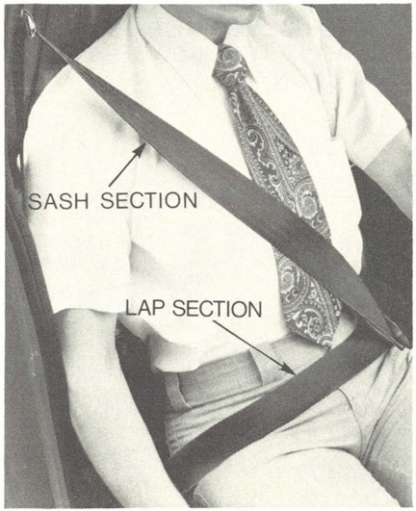
Don't ever put a seat belt around a child being nursed on the lap.

IMPORTANT: Don't use belts that are twisted—untwist them before making any adjustments and be sure that they contour around the body comfortably when adjustments are complete.

Lap/Sash Combination Belt

Emergency Locking Retractor Type

A firm, low position across the pelvis by the lap section of the Lap/Sash



Combination Belt is essential in order that the force exerted by the Lap Belt in a collision may be spread over the strong hip bone structure and not across the soft abdominal area.

This type of seat belt allows the wearer to move bodily while the seat belt is fastened. It is also dual sensitive.

The first way the locking mechanism is activated is by sudden changes of vehicle speed or vehicle direction, as in the case of firm brake application or vehicle impact during an accident.

This phase of the retractor mechanism's operation can be tested by allowing the body to be restrained only by the belt during firm application of the vehicle brakes, at between 2-5 km/h (brisk walking speed) under safe conditions.

The belt should lock immediately, stopping all belt movement. The second way the locking mechanism is activated is by a sudden extension of the belt from the retractor housing. This phase of the retractor mechanism's operation can be tested by holding the belt tightly and giving it a sudden firm jerk. The retractor mechanism should lock immediately, stopping all belt movement. These checks should be carried out regularly.

WARNING: No modifications or additions should be made by the user which will either prevent the seat belt adjusting devices from operating to remove slack, or prevent the seat belt assembly from being adjusted to remove slack.

TONGUE RESTRICTOR

This belt system incorporates a tongue restrictor which can be moved along the belt to locate and hold the tongue in any desired position.

WARNING:The positioning of the tongue restrictor must never interfere with or stop the belt from fully retracting.

BELT ADJUSTMENT

1. Adopt a satisfactory seating position.
2. Bring the metal tongue across the body and snap home the Tongue into the Buckle.
3. After fastening, settle the belt by running a hand under the belt, starting at the outer hip area, then across to the tongue and up the sash section. This will feed back unwanted belt length to the retractor.
4. Finally check the fit and adjustment.

Lap Type Belts

BELT ADJUSTMENT

1. Adopt a satisfactory seating position.
2. Bring the Tongue Adjuster across the body and snap home the Tongue into the Buckle.
3. Adjust the belt to obtain a firm fit. A firm fit low position across the pelvis is essential in order that the force exerted by the lap belt in a collision may be spread over the strong hip bone structure and not across the soft abdominal areas.

   To Lengthen—Tilt the Tongue Adjuster and pull the belt to the right of the finger grip bar.

   To Shorten—Tilt the Tongue Adjuster and use the serrated Finger Grip Bar to pull the belt through the Tongue Adjuster.

BELT STOWAGE

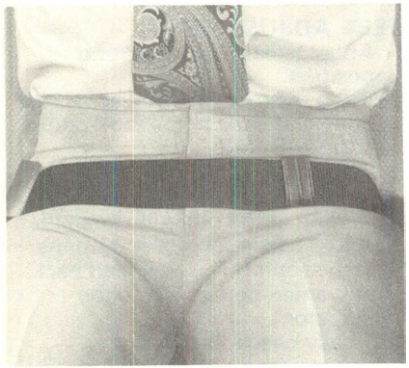
When not in use these belts should be kept with the tongue latched into the appropriate buckle.

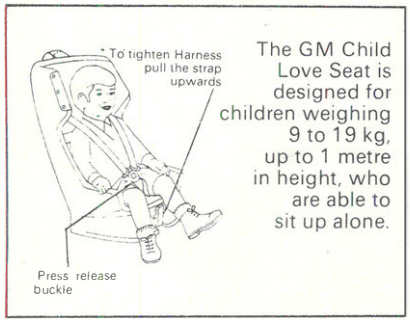
INFANTS UNABLE TO SIT BY THEMSELVES should be carried in a padded, covered bassinet placed **across** the back seat. Strap this in tightly with the two regular seat belts.

CHILDREN ABLE TO SIT UP should be restrained with the regular seat belt. If the sash part rubs on the child's neck or face, move the child towards the centre of the vehicle. If this doesn't work, the child should be lap-belted on the back seat. NEVER allow a child to stand or kneel on any seat.

Where children are carried without a child restraint if the seating position of the child is to be raised this is to be done only by means of a support which is retained by the seat belt.

ON NO ACCOUNT SHOULD A LOOSE CUSHION BE USED, THIS COULD RESULT IN SERIOUS INJURY IN THE CASE OF VEHICLE COLLISION.





The GM Child Love Seat is designed for children weighing 9 to 19 kg, up to 1 metre in height, who are able to sit up alone.

Seats

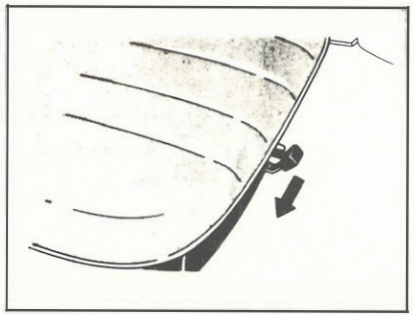
Driver's Seat

Seat adjuster:

The driver's seat can be moved forward or rearward for most comfortable position.

Push sideways on the lever, located at the front lower part of the seat, to release the seat adjuster lock so that the seat can be moved forward or rearward as desired. After adjusting the seat position, move the seat forward and backward to be sure the seat adjusters have been latched.

Do not adjust the seat whilst the vehicle is moving.



AUSTRALIAN DESIGN RULES: WARNINGS

Seat belts are designed to bear upon the bony structure of the body, and should be worn low across the front of the pelvis, or the pelvis, chest and shoulders, as applicable; wearing the lap section of the belt across the abdominal area must be avoided.

Seat belts should be adjusted as firmly as possible, consistent with comfort, to provide the protection for which they have been designed. A slack belt will greatly reduce the protection afforded to the wearer.

Care should be taken to avoid contamination of the webbing with polishes, oils and chemicals, and particularly battery acid. Cleaning may safely be carried out using mild soap and water. The belt should be replaced if webbing becomes frayed, contaminated or damaged.

It is essential to replace the entire assembly after it has been worn in a severe impact even if damage to the assembly is not obvious.

Belts should not be worn with straps twisted.

Each seat belt assembly must only be used by one occupant; it is dangerous to put a belt around a child being carried on the occupant's lap.

No modifications or additions should be made by the user which will either prevent the seat belt adjusting devices from operating to remove slack, or prevent the seat belt assembly from being adjusted to remove slack.

The positioning of the tongue restrictor must never interfere with or stop the belt from fully retracting.

Rear Vision Mirrors

Inside rearview mirror

To adjust, push the mirror right or left, and up or down.

Anti-Glare Type (where fitted)

Where the anti-glare mirror is fitted, a control lever on the lower edge of the mirror enables an anti-glare reflector to be used during night driving. This reduces headlamp glare from following vehicles.

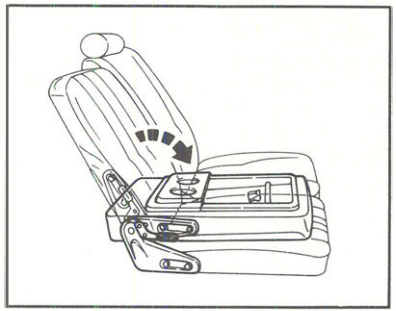
During normal daylight operation, the lever should be set forward. To reduce glare at night, move the lever backwards.

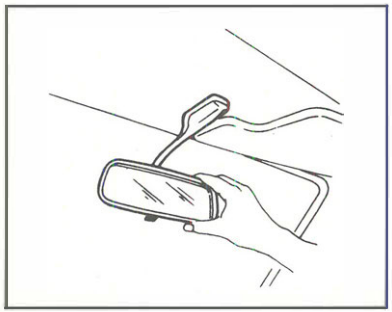
Outside rearview mirror

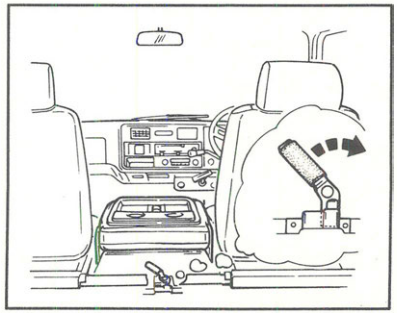
Adjust the outside rearview mirror so you can just see the side of your vehicle in the side of the mirror closest to the vehicle. This helps you determine your relation to objects seen in the mirror. When selecting the most suitable angle for the mirror, ensure that the driver's head is in the normal position for driving then adjust the mirror angle to suit.

Engine compartment cover

To open. Release the catches and open the cover. Use the stay provided to support the cover. If a centre seat is fitted move the lever at the driver's side of the seat and fold the back of the seat forward. The catches for the cover will then be found under the carpet or mat.







PETROL ENGINES

EXHAUST GAS WARNING
Carbon Monoxide Poisoning

Exhaust gases contain carbon monoxide which can cause unconsciousness and even death.

Long term exposure to low levels of carbon monoxide can lead to permanent damage of the body.

You could breathe the gases in if the exhaust system on your vehicle is faulty.

Have the vehicle checked thoroughly each time it is serviced. If you notice a change in exhaust noise, or if the back of your vehicle is damaged, take it to your GMH dealer for inspection.

If you must drive with a faulty exhaust, drive with all the windows open.

Danger

Don't ever sit in a parked vehicle with the engine running for any length of time. And don't leave the kids in there either.

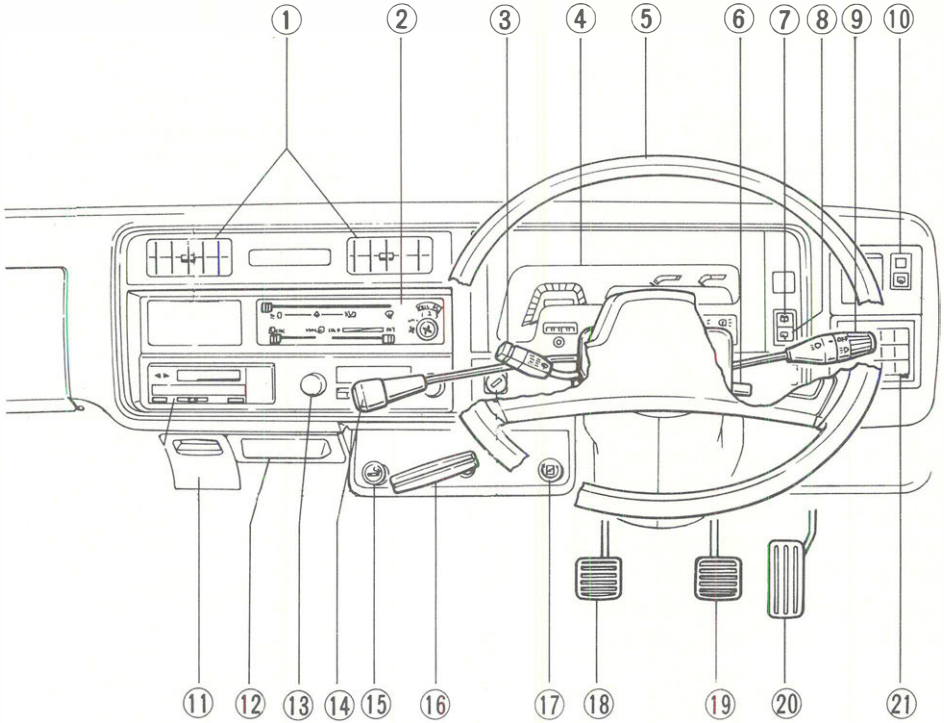
Don't run the engine in the garage any more than necessary to move the vehicle.

Don't ever travel with the rear door open as this allows dangerous carbon monoxide gas to be drawn into the vehicle. This is most harmful and can be fatal to humans and also to animals.

Exhaust Pollution

Your Shuttle is equipped with several features designed to minimise exhaust pollution.

CONTROLS AND INSTRUMENTS



① Centre ventilator grille
② Heater and ventilation control panel
③ Windshield wiper and washer control lever
④ Instruments and indicator lights
⑤ Steering wheel
⑥ Hazard warning switch
⑦ Back door window washer switch*
⑧ Back door window wiper switch*
⑨ Combination light switch lever
⑩ Back door window demister switch*
⑪ Fuse box
⑫ Ash tray
⑬ Radio*
⑭ Transmission gearshift lever
⑮ Cigarette lighter
⑯ Parking brake lever
⑰ Idling control button* (Diesel)
⑱ Clutch pedal
⑲ Brake pedal
⑳ Accelerator pedal
㉑ Side ventilator grille

*where fitted

Steering Column Controls

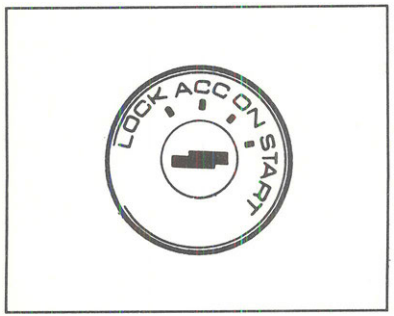
Ignition Lock

This is an anti-theft lock and is on the right side of the steering column. It has four positions.

LOCK: The key can be inserted or removed only when the switch is in this position. The safety button should be pressed when the key is returned to "LOCK" from "ACC" or "ON" position.

ACC (1st forward from Lock)— Permits operation of accessories when the engine is not running.

ON (2nd Forward from Lock) — Normal operating position. The ignition circuit and the electrically operated instruments are energised.



START: (3rd forward from Lock)— Turning the key to this position will start the engine. The key returns to "ON" position when released.

CAUTION: Do not turn the ignition switch away from the "ON" position while the vehicle is in motion as this renders ineffective any power assisted equipment.

Never turn the key to the Lock position whilst the vehicle is in motion as this will lock the steering.

STEERING WHEEL: Avoid turning the steering wheel while the vehicle is stationary. NEVER move the vehicle with the steering locked, or damage to the steering assembly will result.

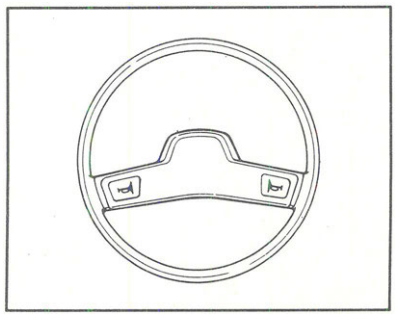
PARKING: When leaving your vehicle unattended:

1. Apply the parking brake.
2. Place transmission selector in Reverse or First gear.
3. Turn key to LOCK position.
4. Remove key.
5. Check the lights.
6. Lock all doors and windows.

NOTE: If the steering lock is difficult to disengage when the vehicle has been parked with the tyres hard up against the kerb or with the steering wheel off-centre it may be necessary to rotate the steering wheel to free up the ignition steering lock.

HORNS

The horn is operated by pressing either of the two buttons on the steering wheel.



Combination Switches

This controls the light switch, turn signal switch, dimmer switch and passing light switch.

Turn Signals

Move the switch lever in direction of a turn being made so that the external turn signal lights operate causing turn signal indicator light on the instrument panel to flash. The switch lever returns automatically to neutral position when steering wheel is returned to straight ahead position.

Light switch

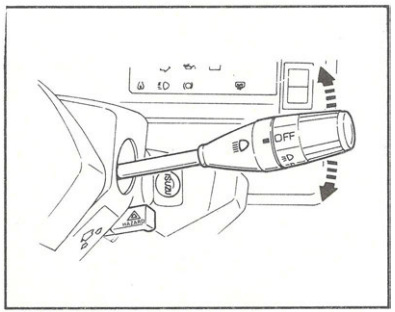
To turn on the parking lights, tail lights, licence plate lights, and instrument panel lights, turn the switch knob clockwise to the first stop.

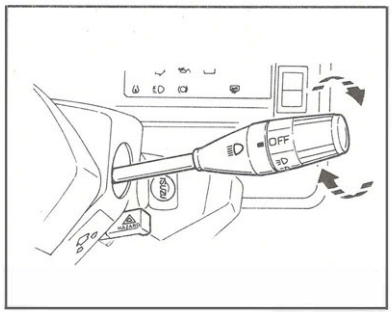
To turn on the headlights and other lights, turn the switch knob clockwise to the next stop.

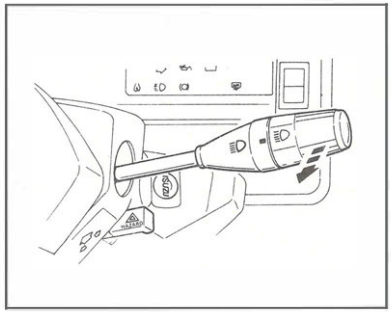
Headlamp Dipping

The headlight beam is alternately switched from low to high or high to low each time the switch lever is moved towards the steering wheel and released.

The headlight high beam indicator on the instrument panel lights up, when the headlights are on high beam.







Passing light switch

The headlight high beam turns on and goes out each time the switch lever is moved towards steering wheel and released with the light switch in either "OFF" or "1st" position.

To give a signal of overtaking operate the lever repeatedly so that the headlights are made to flash in daytime and alternately switch from low to high beams at night.

Windshield Wipers and Washers

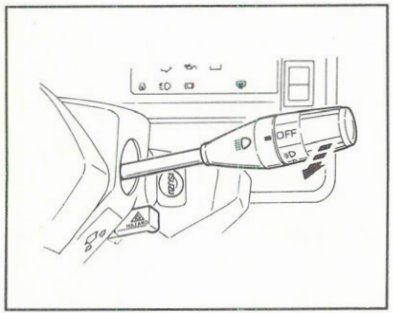
Wiper Operation (Front)—The windshield wipers are operated by turning the end of the stalk clockwise.

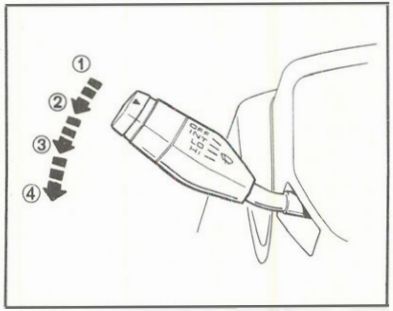
The switch has 3 positions to control the wipers.

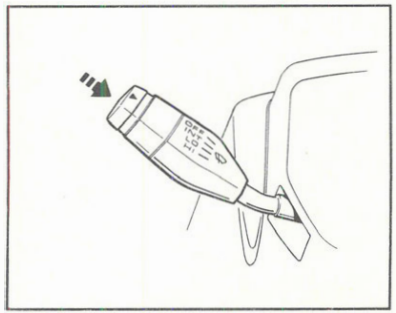
① Off
② Intermittent (where fitted)
③ Low speed
④ High speed

Do not operate the wipers if the windshield is dry. It may scratch the windshield glass. Do not operate wipers if they are caked with snow or frozen as it may damage the wiper system.

Washer Operation (Front)—By depressing the button on the end of the stalk the electric washer pump is activated, spraying jets of fluid onto the area swept by the wiper blades, and will only continue while the button is depressed.







Windshield washer tank

The tank should be filled only with plain water or AC Delco Optikleen washer solution. (Part No. M37068.)

Hazard warning switch

When the switch button is pushed in, the entire turn signal lights are made to flash regardless of the turn signal switch position. The hazard warning flasher switch is to be used ONLY when your vehicle has become a traffic hazard.

USE OF THE HAZARD WARNING SYSTEM WHILE THE VEHICLE IS MOVING IS PROHIBITED BY LAW IN SOME STATES.

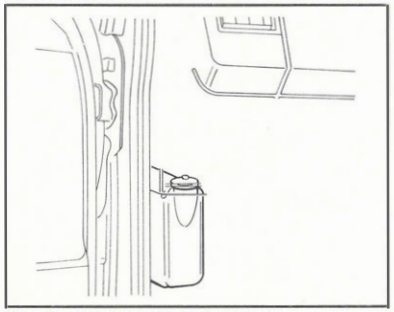
Dome Lights

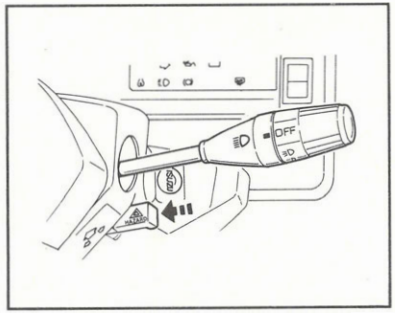
The dome light is operative at any starter switch position.

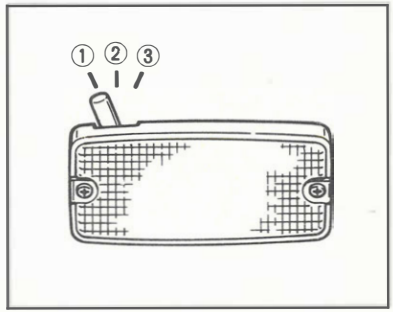
① "OFF" position: The light remains out.

② "DOOR" position: The light turns on when the door is opened.

③ "ON" position: The light turns on regardless of the door position.







Transmission Control

This system has five fully synchronised forward gears and a non-synchronised reverse gear.

The gear selection pattern is indicated on the steering column.

First Gear — Low: This is synchronised and so can be engaged at low speeds when necessary.

Second Gear — Low Intermediate: Use this gear in traffic and steep hills.

Third Gear — High Intermediate: Use this gear for accelerating and retarding in traffic and to maintain speed on hills.

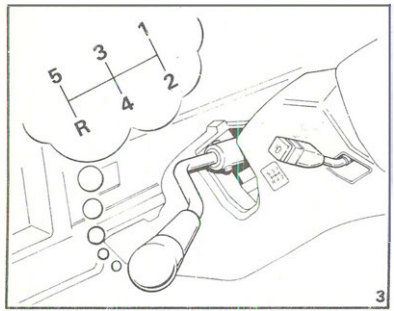
Fourth Gear — High: This is the normal cruising gear for city and suburbs. A lower gear should be selected for accelerating or retarding.

Fifth Gear — Use this gear for highway cruising above 80 km/h but use fourth gear when acceleration or retardation is required.

Reverse Gear — This gear must never be engaged unless the car is stationary.

Back-Up Lights — These will operate whenever Reverse is selected, provided the ignition switch is in the ON position.

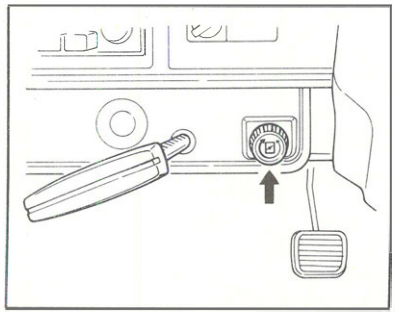
Always use 1st or Reverse gear when starting from rest.



Instrument Cluster

Idling control button (Diesel)

Turning the button clockwise (in direction of arrow) after cold starting of the engine will increase idling speed thereby facilitating quick normalization of the engine. Always drive with the button returned to home position.

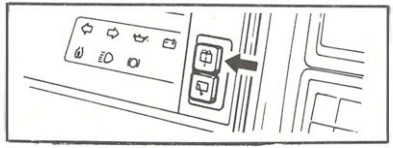


Back door window wiper (where fitted)

Depress the switch to operate the back door window wiper. **Do not operate the wipers if the back door window is dry. It may scratch the window glass. Do not operate wipers if they are caked with snow or frozen as it may damage the wiper system.**

Back door window washer switch (where fitted)

Push and hold the switch button so that the washing solution is squirted on to the back door windshield.



Back door window washer tank (where fitted)

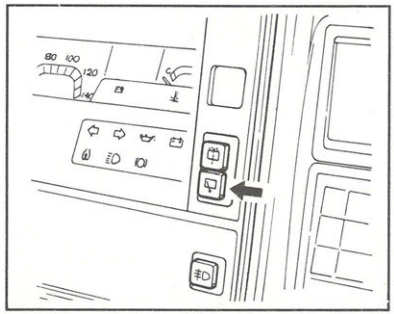
The washer tank is installed in the inside panel at the left rear wheel arch.

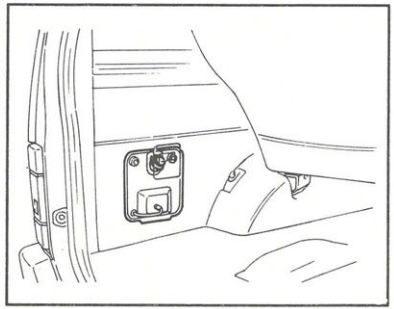
The tank should be filled only with plain water or AC Delco Optikleen.

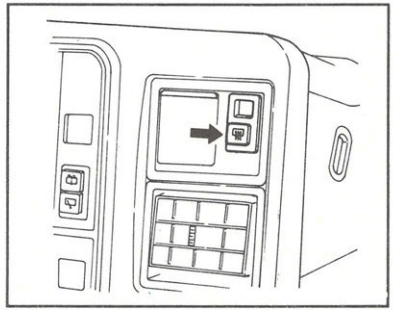
Back door window demister (where fitted)

With the starter switch on, depress the switch knob to use the back door window demister. The indicator light turns on when this switch is in use. When the back door window becomes clear turn off by depressing the switch again.

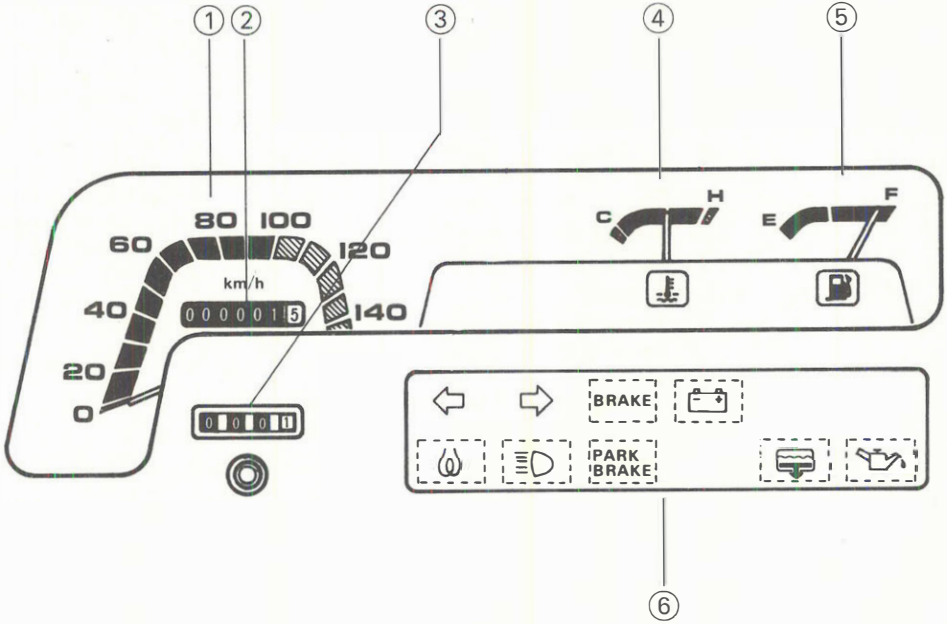
If the switch is left on, the battery will discharge. A warning light located above the switch turns on when the demister is operating.







Meters and indicator lights



① Speedometer
② Odometer
③ Trip meter
④ Temperature gauge
⑤ Fuel gauge
⑥ Indicator lights

Speedometer

The speedometer indicates the vehicle speed in kilometres per hour (kph).

Odometer

The odometer registers the accumulated distance in kilometres.

The black figures on the extreme right indicate 0.1 kilometre.

Trip meter

A reset knob for trip distance is located in speedometer lower centre section.

To reset trip counter, push the knob in.

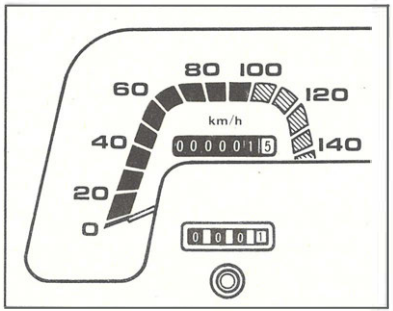
Temperature gauge

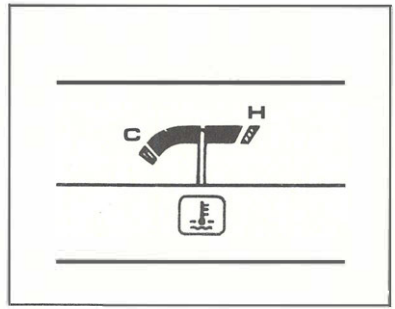
The gauge indicates the engine coolant temperature and normal engine coolant temperature is indicated when the gauge reading is around 80°C. If the gauge indicates overheating condition, stop the vehicle and keep the engine running at idle until coolant temperature lowers to normal level.

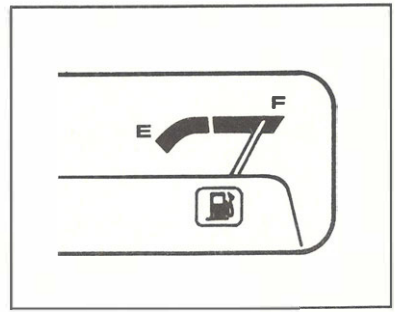
Determine cause of overheating and rectify before proceeding.

Fuel Gauge

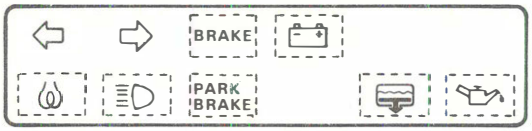
The fuel gauge indicates the level of fuel within the fuel tank when the starter switch is turned on. The letters "F" and "E" represent "Full" and "Empty" respectively.







Indicator Lights



Turn signal indicator lights

Oil pressure indicator light

Generator indicator light

Glow indicator light (Diesel)

High beam indicator light

PARK BRAKE Parking brake indicator light

Fuel filter indicator light (Diesel)

BRAKE Brake fluid level indicator light

Turn Signal Indicator Lights

When the turn signal switch or hazard warning flasher switch is turned on, the turn signal indicator light flashes to indicate operation of the external turn signal or hazard warning flasher.

Oil Pressure Indicator Light

The oil pressure warning light turns on when the starter switch is turned on but before the engine is started. **If the oil pressure indicator light comes on while driving, it indicates that the oil pressure is dangerously low. Stop the engine immediately and check level of oil in the engine crankcase. If the oil level is normal have the lubricating system checked at your nearest dealer.**

Generator Indicator Light

The generator indicator light lights up when the starter switch is turned on but before the engine is started. The generator indicator light lights up when generator circuit fails.

If the generator indicator lights turn on while driving, have the generator circuit checked at your nearest GMH dealer.

Glow Indicator Light

The diesel engine has a special starting system. Small heating elements, called "glow plugs", preheat the engine for easier starting. The indicator light may stay on a short time or may go out right away. The waiting time will vary with the engine and coolant temperatures.

When the glow plugs are sufficiently heated for cold engine starting, the indicator light will go out. This indicates that the engine is ready to be started.

High Beam Indicator Light

The high beam indicator light turns on when headlight high beams are in use.

Parking Brake Indicator Light

With the ignition switch in the ON position, the warning light will operate while the brake is on or not fully released.

When the brake has been fully released the parking brake warning light in the instrument panel will go out.

Never drive the vehicle with the warning light on.

Fuel Filter Indicator Light (Diesel Only)

Under certain circumstances water may be taken into the fuel tank, and to prevent water from reaching the vital parts of the fuel system, a water separator is installed. When the level of water trapped within the water separator reaches the specified level, the indicator light turns on. **If the indicator light turns on and remains on with the engine running, it indicates the need for draining water separator.** **(See page 49.)**

Brake Fluid Level Indicator Light

The brake indicator light indicates the level of brake fluid in the reservoir. With starter switch in "ON" position, the light turns on when the brake fluid in the reservoir is lower than the specified level indicating need for immediate replenishment.

(See page 82.)

Floor Controls

Accelerator Pedal

To avoid unnecessary increase in fuel consumption, the accelerator pedal should be operated smoothly.

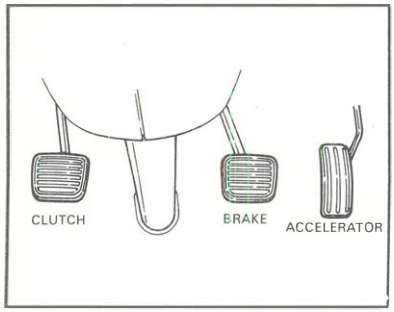
Clutch Pedal

The clutch pedal should be fully depressed when disengaging. If this is not done, grating of the gears may result.

Do not allow your foot to rest on the pedal when not using the clutch.

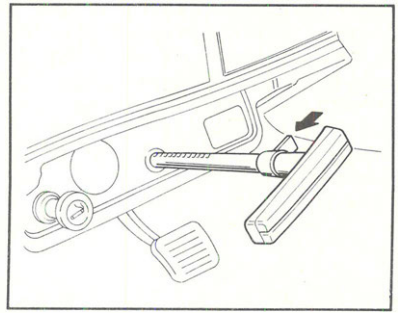
Brake Pedal

Avoid hard stops by operating the foot brake pedal in a smooth manner. When descending a slope, it is always advisable to use the foot brakes in combination with the engine braking effect.



Parking Brake Lever

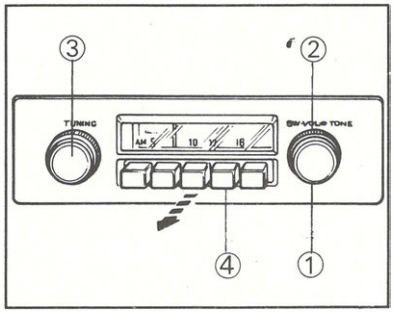
Turn the lever anticlockwise while pulling the safety knob and push it back into home position for releasing. **Never drive with parking brake set as this may overheat or otherwise damage parking brake mechanism.**



Radio (where fitted)

(AM)

1. ON/OFF switch and volume control:
   Push the volume control to switch the receiver on, a second push will switch the receiver off. Turn the control to increase or decrease volume.
2. Tone Control:
   Turn to control tone.
3. Manual tuning control:
   The receiver may be tuned at any time by means of manual tuning control, this will not affect the pre selected stations on push controls.
4. Push buttons:
   Push button in to tune into a pre selected station.



Push buttons can be pre set in the following manner:

(a) Unlock the push button by firmly pulling outwards.

(b) Accurately tune the receiver to the required station with manual tuning control.

(c) Lock push button to the station by pushing in slowly and completely.

Ventilation and Heating System

The vehicle features a flow-through ventilation system for your comfort. Under reasonable conditions, it shouldn't be necessary to open the windows at any time. Fresh air is ducted into the vehicle through the plenum chamber in front of the windshield.

Ventilators

A pair of centre vents are located on the centre part of the instrument panel. Side vents are located in each end of the instrument panel. Pivoting the entire grille about the horizontal axis controls the direction of air flow up and down. The knob at the upper centre part of the grille controls direction of air flow horizontally.

Heater Demister and Air Conditioning (where fitted)

The functions of the heater and air conditioner when the engine is running are as follows:
Heating.
Windshield demisting.
Ventilation.
Cooling.

Air outlet select lever positions

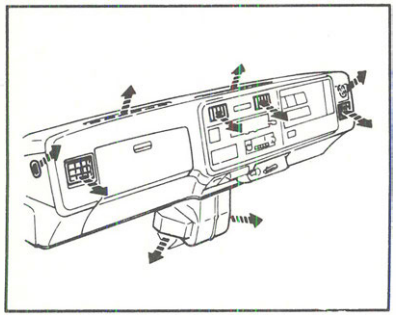
1. "Face": Air to face level.
2. "Bi-level": Air to face and foot levels.
3. "Foot": Air to foot level.
4. "Defrost": Air to windshield and side windows for demisting.

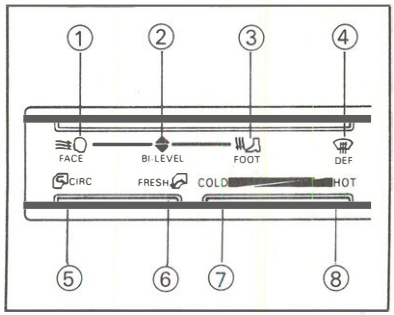
Air-Source select lever positions

5. "Circ": Air recirculated in the vehicle.
6. "Fresh": Outside air brought into the vehicle.

Temperature lever positions

7. "COLD": Low temperature.
8. "HOT": High temperature is variable between hot and cold limits.

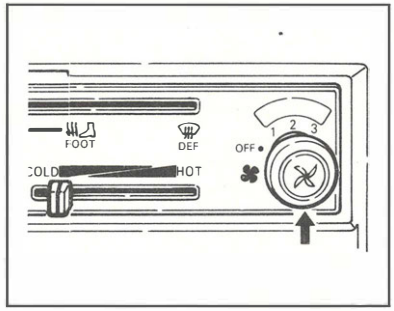




How to Use The Controls

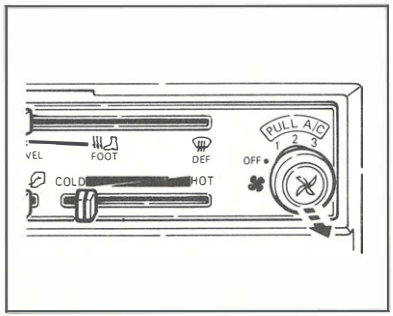
Fan blower switch

By turning the fan blower switch, air flow can be controlled in 3 steps.



Air conditioning switch (where fitted)

To turn the air conditioner on, pull the fan switch towards you.



Ventilation

Set air source lever to "Fresh" to obtain outside air. Air flow may be boosted by using the fan.
Select air outlet temperature control positions as desired.
If outside air is not required for any reason, set the air source lever to "Circ".

Heating or cooling (with air conditioner operating)

Set the temperature control lever to obtain the required temperature. Set air outlet select lever to direct the heated or cooled air where it is required. For rapid heating or cooling set the air source lever to "Circ" and use fan.

For normal heating or cooling air source select lever may be set for "Fresh" position. If vehicle is moving use of fan is optional.

Rapid Cooling

To rapidly cool the vehicle after it has been parked in the sun, open the windows and set the fan blower switch to position "4". Close the windows as soon as the vehicle is cooled.

Dehumidified heating

With the air conditioning on adjust the Select Lever, Air Source Lever and Temperature Lever for the most comfortable condition.

Operating an air conditioned vehicle

Do not operate the air conditioning for a long time when the vehicle is parked, the air conditioning and engine are adversely affected.

Turn air conditioning and fan off before engine is started.

Starting and Driving

The following suggestions are for starting and driving and should be followed if you are to get the best out of your vehicle.

Parking Brake

This should be firmly applied, and released only after you have started the engine.

Transmission

Press the clutch in and select neutral in the transmission.

Petrol Engine

Starting Engine

1. Pump the accelerator pedal 2 or 3 times and release it.
2. Depress the clutch pedal all the way to floor, hold and crank the engine by turning the starter switch fully clockwise.

   Release the key as soon as the engine starts. The starter switch will return automatically to "on" position.
3. When the engine starts, allow it to run at fast idle for approximately 20 to 30 seconds to facilitate warming-up.

   If the engine does not start with the carburettor flooded, continue to operate the starter motor with the accelerator pedal depressed to floor.

   Do not keep the starter motor engaged for more than 15 seconds at a time.

   Wait 30 seconds before trying again. If the starter motor has been operated continuously but the engine did not start, allow 30 seconds before attempting to restart. If the engine fails to start with repeated cranking, check fuel system and electrical system.

Diesel Engine

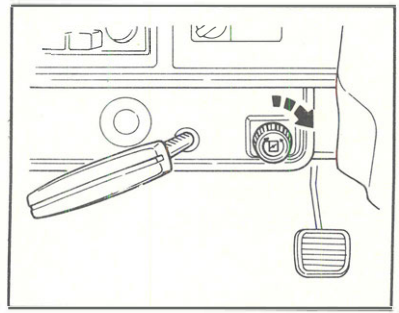
1. Turn the starter key to ON position.

   Check to see if the oil pressure indicator light, generator indicator light and filter indicator light turn on.

   The glow indicator light will light and then go off in about 0.3 seconds if the engine is warm, or in about 3.5 seconds if the engine is cold.
2. As soon as the glow indicator light has gone off, fully depress the accelerator pedal and clutch pedal then crank the engine by turning the starter switch to start.

   Release the key as soon as the engine starts. The starter switch will return automatically to ON position.
3. When the engine starts, depress the accelerator pedal part way down and check to be sure that the oil pressure indicator light and generator light go out.

   If necessary to achieve a smooth



idle, turn the idling control knob clockwise and hold until the engine reaches normal operating temperature. Turn the idling control knob to home position after the engine becomes warmed up.

Petrol & Diesel

Initial Driving Petrol & Diesel

Depress the clutch pedal and place the gear shift lever into the first or the reverse gear position according to requirements. Release the parking brake. Lightly depress the accelerator pedal to increase the engine speed and slowly release the clutch pedal to set the vehicle in motion.

If the Engine Fails to Start with Initial Cranking

IMPORTANT: Do not keep the starter engaged for more than 15 seconds (Petrol Engine) or 30 seconds (Diesel Engine) at a time. Wait 30 seconds and try again.

Note: If the starting motor has been operated continuously but the engine did not start, allow 30 seconds before attempting to restart. If the engine fails to start with repeated cranking, check fuel system and electrical system.

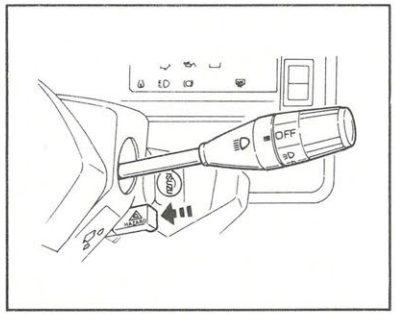
Four-Way Hazard Warning Flasher

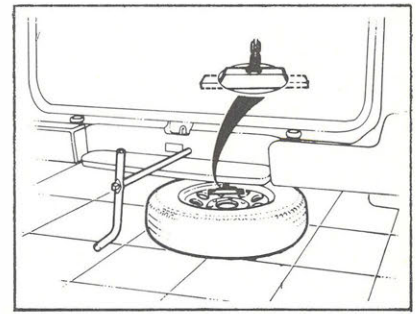
- Use the warning flasher to warn other drivers any time your vehicle becomes a traffic hazard, day or night.
- Turn on the hazard warning flasher, with engine ignition off or on, by pushing the button located on the right side of the steering column.
- To cancel the flasher, pull the button out.

USE OF THE HAZARD WARNING SYSTEM WHILE THE VEHICLE IS MOVING IS PROHIBITED BY LAW IN SOME STATES.

Spare Wheel Storage

The spare wheel is secured to the rear part of the underbody by a chain. To lower the spare wheel insert the handle into the hole in the rear face of the vehicle just above the rear step. Engage the winch and turn the handle anti-clockwise to lower. Turn the handle clockwise to securely hold the wheel in the stowed position. After the wheel is secured turn the handle one additional turn.



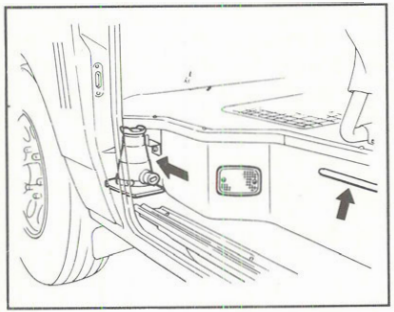


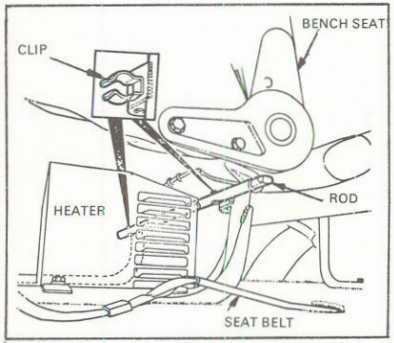
Wheel Changing

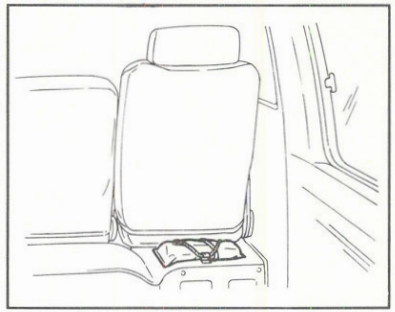
The jack is stowed in the jack compartment in the front of the side step. The jacking handle rod is installed on the step wall panel, except for the wagon where it is installed under the second seat in clips provided.

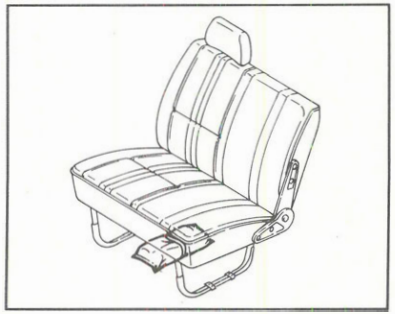
The rod extension for the jack is in the toolkit and can be used whenever necessary.

Tool set is stowed at rear of driver seat, except for wagon where it is stowed under the second seat.



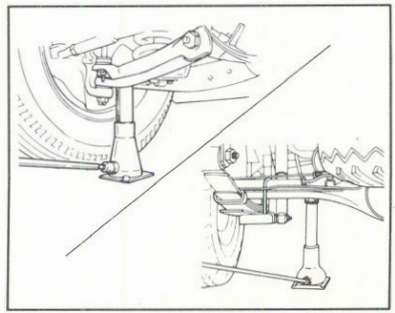




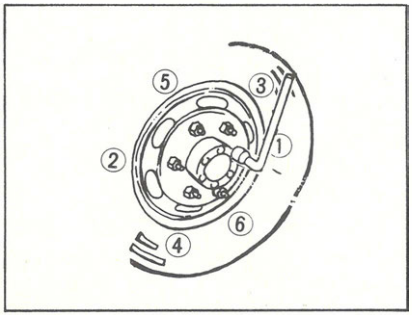


Instructions

1. Park on a level surface and firmly put on the parking brake. Activate the hazard warning flashers and set transmission in reverse.
2. Block the wheel diagonally opposite to the jacking position. Loosen the wheel nuts slightly. Don't remove them.
3. Using the jack handle position the jack under the vehicle according to the illustration.
4. Operate the jack by placing the square end of the jack handle into the recess provided and turn the handle clockwise to raise the vehicle until the tyre clears the ground.



5. Remove the wheel nuts and change the wheel.
6. Tighten the wheel nuts with your fingers then with the wrench in the order shown. Lower the vehicle until the wheel touches the ground and is held from rotating. Fully tighten the wheel nuts using the sequence illustrated.
7. Completely lower the vehicle and remove the jack using the handle in the bracket provided.



Safety Hints

1. Carefully follow jacking instructions in order to reduce the possibility of serious personal injury.
2. The jack is designed for use ONLY when changing wheels.
3. Never get beneath the vehicle when supported by the jack only.
4. Do not start or run the engine while the vehicle is on the jack only.
5. All Passengers should be out of the vehicle when it is on the jack and the handbrake should be firmly applied.

CAUTION: As soon as practical, after a wheel change, the wheel nut torques should be checked at a GMH Dealership, or by another competent person, to ensure correct tightness.

Emergency Starting

Starting With Auxiliary (Booster) Battery

To start the vehicle when the battery is discharged, use a single auxiliary battery of the same nominal voltage, i.e. 12 volts, as the discharged battery, with suitable jumper cables.

CAUTION:

Never expose battery to open flame or electric spark—battery action generates hydrogen gas which is flammable and explosive. Don't allow battery fluid to contact skin, eyes, fabrics, or painted surfaces—fluid is a sulphuric acid solution which could cause serious personal injury or property damage. Wear eye protection when working with battery.

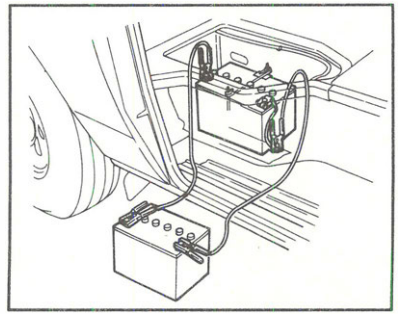
Both booster and discharged battery should be treated carefully when using jumper cables. Follow exactly the procedure outlined below, being careful not to cause sparks. (See Fig.)

1. Set parking brake and place transmission in neutral. Turn off lights and other electrical loads.
2. Remove vent caps from both the booster and the discharged batteries. Lay a cloth over the open vent wells of each battery. These two actions help reduce the explosion hazard always present in either battery when connecting "live" booster batteries to "dead" batteries.
3. Attach one end of one jumper cable to the positive terminal of the booster battery (identified by a red colour, "+" or "P" on the battery case, post or clamp) and the other end of same cable to positive terminal or discharged battery. Do NOT permit vehicles to touch each other, as this could establish a ground connection and counteract the benefits of this procedure.
4. Attach one end of the remaining negative (−) cable to the negative terminal (black colour, "−" or "N") of the booster battery, and the other end to the negative post of dead battery—taking care that clamps from one cable do not touch the clamps on the other cable. Do not lean over the battery when making this connection.
5. Start the vehicle with discharged battery.
6. Reverse this sequence exactly when removing the jumper cables. Reinstall vent caps and discard cloths as these may have corrosive acid on them.

CAUTION:

Any procedure other than the above could result in: (1) personal injury caused by electrolyte squirting out the battery vents, (2) personal injury or property damage due to battery explosion, (3) damage to the charging system of the booster vehicle or of the immobilised vehicle.

Do not attempt to jump start a vehicle having a frozen battery because the battery may rupture or explode. If a frozen battery is suspected, examine all fill vents in the battery. If ice can be seen or if the electrolyte fluid cannot be seen, do not attempt to start with jumper cables as long as the battery remains frozen.



Push Starting (Petrol engine only)

- NEVER TOW the vehicle to start because the surge forward when the engine starts could cause a collision with the tow vehicle.
- When being pushed to start the engine, turn off all unnecessary electrical loads, turn starter switch to "ON", depress the clutch pedal and place the shift lever in high gear. Release the clutch pedal when speed reaches 15-25 km/h. Bumpers and other parts contacted by the pushing vehicle should be protected from damage during pushing.

WARNING

DO NOT ATTEMPT TO PUSH START A DIESEL ENGINED VEHICLE. IN AN EMERGENCY IF YOU ARE UNABLE TO START WITH A JUMPER LEAD, CALL YOUR NEAREST DEALER FOR ASSISTANCE.

Towing

Proper lifting or towing equipment is necessary, when lifting or towing the vehicle to prevent damage to it during any towing operation. Detailed towing information is available at your dealer and has been provided to tow truck operators responsible for movement of disabled or locked vehicles. However, in an emergency, a disabled or locked vehicle may be towed in the following manner:

- Fit the towing rope (safety chains or cables) in the locations as follows;

  Front: tow eye.
  Rear: shackle.
- When a need has arisen for towing your vehicle, release the parking brake and place the transmission in neutral. It is important that the transmission and rear axle are in good operating condition to enable the vehicle to be towed.
- When towing a vehicle with trouble in the rear axle;

  It is necessary to tow the vehicle with the rear wheels lifted and to disconnect the propeller shaft, or to lift the rear wheels when towing a vehicle with transmission trouble.

Towing a Disabled Vehicle

Freeing Vehicle From Sand, etc.

If it becomes necessary to rock the vehicle to free it from sand, mud or snow, move the gear shift lever from second to reverse gear. Do not race engine. For best possible traction, avoid spinning wheels when trying to free the vehicle. Use of tyre chains is recommended for temporary assistance when traction is lost on ice or snow.

CAUTION:
Wheel spin should not exceed 55 km/h as indicated on the speedometer. Unless care is taken in limiting rear wheel spin, one spinning wheel can reach excessive speeds, resulting in possible tyre disintegration or differential failure, which could cause personal injury or extensive vehicle damage.

Towing by a Tow Rope Type attachment

The tow rope and safety chains must be attached to tow eye at the front. Make certain that the rope attachment to the tow vehicle is as low as possible.

For the sake of safety and to prevent damage to the vehicle and tow rope it is advisable to avoid jerky movements and to drive slowly during towing operations.

It is always preferable to have a vehicle towed by a tow truck. If this is not possible heed the following cautions.

Never tow a vehicle on four wheels with the ignition switch in LOCK or ACC.

Never tow a vehicle at speeds over 40 km/h.

Don't attach lifting hooks or chains to bumper bars or bumper brackets, or to any damaged part of the vehicle.

Only the driver should be in a towed vehicle.

Vehicles with damaged transmissions must not be towed unless the propeller shaft has been removed.

Towing by Tow Truck

The vehicle should be raised until the lifted wheels are a minimum of 10 cm from the ground, care should be taken to ensure adequate ground clearance at the opposite end of the vehicle.

In cases of rear end damage it may be necessary to lift the rear end of the vehicle and tow on the front wheels only. In such cases the steering wheel must be clamped in the straight ahead position using a clamping device designed for towing service use, such as those provided by towing equipment manufacturers. **Do not use the vehicle's steering column lock for this purpose.**

Overheating

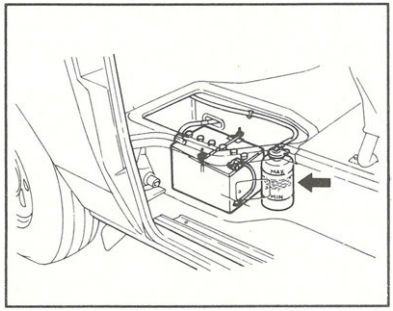
When Indicator light comes on;
When Temperature gauge indicates HOT;
If excessive hot water or steam appears from Engine Compartment.

If this happens, stop by the road side and let the engine idle for about two minutes. Then turn it off and open the engine cover.

While the engine is cooling, check your fan belt for slipping or breakage and check for damage to the radiator hoses. Take care as the hoses will be hot.

Radiator Surge Tank

The radiator surge tank is provided near the battery. Coolant level is checked by opening the battery



check cover on the floor near the sliding door.

Check the level of coolant and replenish at the radiator surge tank. When the level of coolant within the surge tank is found to be lower than "MIN" line of its capacity, check the cooling system for leaks, then replenish to bring the level up to the "MAX" line.

Do not overfill the surge tank. The radiator filler cap should not be removed unless necessary. The coolant level should be checked while the engine is cold. Supplement inhibitors or additives claiming to provide increasing cooling capability that have not been specifically approved by GMH are not recommended for addition to the cooling system. It is the owner's responsibility to keep the freeze protection at a level commensurate with the temperatures which may occur in the area of vehicle operation.

CAUTION: DO NOT remove the radiator cap while the engine is still hot because the cooling system will blow out scalding fluid and steam under pressure which is likely to cause serious personal injury and loss of coolant.

When Oil Pressure Indicator Light Comes On

- If the oil pressure indicator light comes on while engine is running, immediately stop engine.

CAUTION: Do not run the engine at high speed when the oil pressure indicator light is on, otherwise the engine may be damaged.

- Check the level of the engine oil and check for leakage of lubricating oil at the same time. Replenish with proper engine oil up to the specified level, if necessary, and restart the engine to see that oil pressure indicator light goes out.

  If the oil pressure indicator light does not go out even with sufficient level of lubricant in the crankcase, or lubricant is leaking, obtain assistance from your GMH dealer.

When Charge Indicator Light Comes On

- This indicates that the alternator is not generating. Immediately stop your vehicle and check for loose or broken fan drive belt. If loose, adjust belt tension. If the belt is found broken, or if the fan belt is not responsible for the trouble, have your GMH dealer inspect and correct the fault.

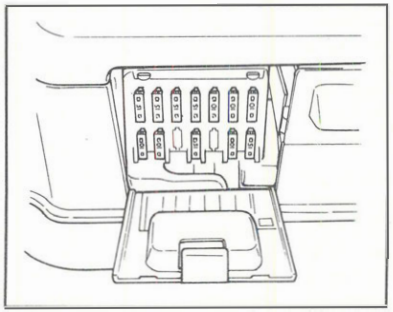
CAUTION: Driving under this condition will eventually discharge the battery. If the fan belt is loose or broken, overheating of engine will result. DO NOT drive for an extended period of time if the charge warning light is on.

When an Electrical Device is Inoperative

- If chassis electrical trouble is encountered without extreme damage to any electrical parts, check for burned out fuse, broken wire, poor connections or poor grounding and correct as necessary.

NOTE: The fuse box is located near the ash tray. The cover can be easily pulled out by hand. (For amperage of fuses, refer to "Specifications" in the later section.)

CAUTION: When replacing a fuse be sure to use a fuse of the specified amperage. Never install a wire or similar for replacement as it may cause a fire hazard to the vehicle.

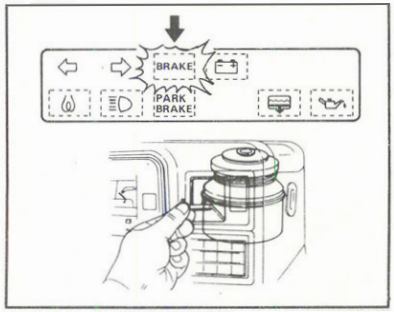


- If the cause of trouble cannot be located through the above checks and trouble persists, contact your nearest GMH dealer.

When Brake Light Comes On

When the brake indicator light on the instrument panel turns on while driving, the fluid reservoir should be filled to the level mark. Use only recommended hydraulic brake fluid. (See lubricants.)

If fluid level continues to drop as brakes are used have a GMH Dealer inspect and correct the fault IMMEDIATELY.



Diesel Engined Vehicle

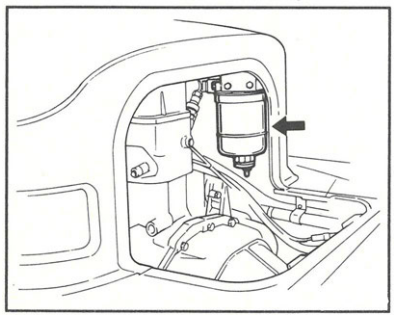
How to Discharge Water from the Sedimentor attached to the Fuel Filter

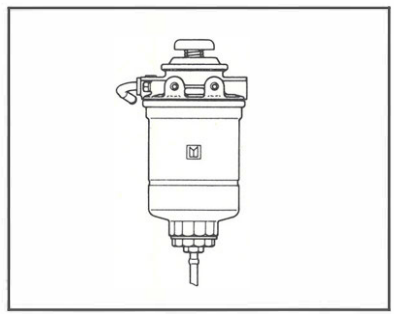
The fuel filter has a sedimentor chamber for settling water separated from fuel.

When the "FILTER" indicator lamp on the instrument panel lights up, water in the sedimentor chamber must be drained.

1. Open the engine hole and place a small container (approximately 0.2 litres capacity) at the end of the vinyl hose beneath the drain plug on the separator.
2. Loosen the drain plug by turning it counter-clockwise (approximately five turns) and operate the manual pump up and down until 60 to 100cc of water has been drained.
3. After draining, securely tighten the drain plug by turning it clockwise and operate the manual pump up and down several times.
4. After starting the engine, check to see that no fuel leaks from the drain plug. Also check to see that the fuel filter indicator light has turned off.

   If water separator requires frequent draining, have the fuel tank drained for removal of water at your GMH dealer.





Starting the Engine after running out of Fuel

When the engine stops after running out of fuel, there will be air in the fuel line. After the fuel tank is refilled this air must be removed before the engine can be restarted.

1. Set the transmission into neutral.
2. Depress the clutch pedal fully.
3. Turn the ignition key to the "ON" position and crank the engine continuously for 30 seconds.
4. Wait for 30 seconds before starting the engine, in accordance with the "Engine starting procedure" described previously.

WARNING
Push Starting
DO NOT ATTEMPT TO PUSH START A DIESEL ENGINED VEHICLE. IN AN EMERGENCY IF YOU ARE UNABLE TO START WITH A JUMPER LEAD, CALL YOUR NEAREST DEALER FOR ASSISTANCE.

Emission Control Systems

Petrol Engines Only

IMPORTANT: This is an explanation of the operation of the emission control systems fitted to your new vehicle.

Introduction

There are three areas from which pollutants are emitted:

(a) Exhaust System
(b) Crankcase
(c) Fuel System.

A number of controls have been installed by General Motors-Holden's Limited to control the amount of pollutants emitted from your new vehicle.

The following has been produced to assist you in understanding their function by briefly explaining the operation of the various components involved.

Sources of Emissions

During the combustion process in an automotive engine, some of the fuel (hydrocarbons) fails to burn and is discharged into the engine crankcase or exhaust system. Additionally hydrocarbons are emitted into the atmosphere through evaporation of petrol vapors from the fuel tank and carburettor. Of the total hydrocarbons coming from uncontrolled automobiles, about 25% are emitted from the crankcase, 20% from the fuel system and 55% from the engine exhaust.

In addition to hydrocarbons, carbon monoxide and oxides of nitrogen are also formed during the combustion process. These are also discharged into the exhaust system.

What General Motors Has Done

Since research on the control of vehicle emissions first began General Motors world-wide resources have developed a number of control systems which are highly effective in reducing undesirable emissions. These systems are discussed in this publication.

Exhaust Emissions

The exhaust of a petrol automobile engine contains three significant air pollutants; carbon monoxide, unburned hydrocarbons, and oxides of nitrogen. It also contains small amounts of solid matter — called particulates — made up largely of lead compounds from the tetraethyl lead used to increase the octane rating of petrol.

Control of hydrocarbon emissions is important since, when subjected to sunlight under certain conditions, they may react with other gases to form photochemical smog. Carbon monoxide does not enter into the complex of photochemical smog reaction, but it is itself a pollutant and, thus, has been controlled to prevent high atmospheric concentrations.

Exhaust Emission Control Systems

Controlled Combustion System (CCS) Components

CARBURETTOR

The carburettor has been calibrated to give a lean mixture of a good quality, particularly at idle or during slow speed operation.

AUTOMATIC CHOKE

An electrically heated metal strip coil is used to open the choke. As the metal strip heats up the choke progressively comes out of operation.

DISTRIBUTOR

The advance curve of the ignition distributor contributes to meeting the emission limits.

IDLE STOP SOLENOID

An idle stop solenoid, shuts off the idle fuel mixture when the ignition switch is turned off, to reduce the possibility of engine run-on.

COOLING SYSTEM THERMOSTAT

The thermostat opening temperature has been revised to meet the requirements of the system during engine warm-up.

Coasting Richer System (CR)

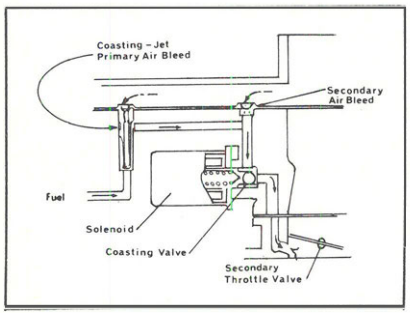
The Coasting Richer system fitted to Shuttle vehicles, is an independently operated auxiliary fuel system operated by a solenoid on the carburettor. The solenoid retracts a plunger that allows an air/fuel mixture to enter under the secondary throttle valve. This mixture brings the air/fuel ratio back into balance for efficient combustion while the vehicle is operating under closed throttle conditions in third or fourth gear.

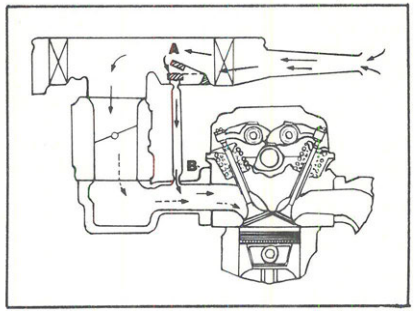
Hot Idle Compensator System (HIC)

Located in the air cleaner the Hot Idle Compensator valve is operated by a bi-metallic arm (A). As the temperature in the air cleaner reaches approximately 47°C the valve opens and allows filtered air to enter through a tube into the intake manifold (B). This increases idle speed and air flow, leaning off the air fuel mixture and thus reducing hydrocarbon and carbon monoxide content. It also gives a smoother idle as intake air temperature increases.

Vacuum Advance Control (VAC) System

This system is designed to control the vacuum signal available to the vacuum advance mechanism of the distributor. A "ported" vacuum spark advance system is used to optimise emission control as well as vehicle performance. When the throttle is in the idle position, the "port" which is above the throttle valve, has no vacuum present. As the throttle opens the port is uncovered providing vacuum advance for normal economy operation.

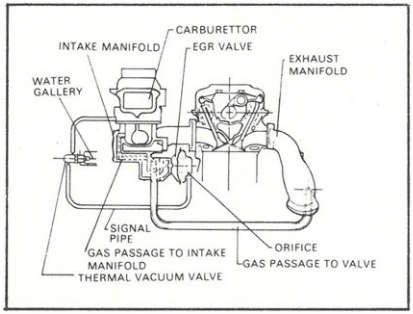




Exhaust Gas Recirculation (EGR) System

This system introduces controlled quantities of exhaust gas into the inlet manifold resulting in lower peak combustion temperatures in the combustion process which, in turn, reduces the formation of nitrogen oxides.

A thermal vacuum valve opens the vacuum line to the exhaust gas recirculation valve only after the engine has reached a predetermined temperature. At this stage the valve to a ported vacuum signal from the carburettor opens.

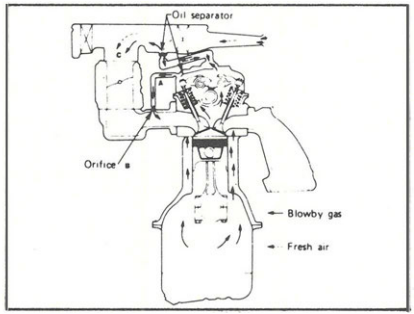


Crankcase Emission Control System

Positive Crankcase Ventilation (PCV) System

The purpose of the system is to draw the blow-by gases out of the crankcase, into the intake manifold system and thus recycle these gases through the combustion process in the cylinders.

At idle and during normal driving conditions gases are drawn out of the crankcase via a hose (A) through the restricted orifice (B) into the intake manifold. During acceleration or constant high speed operation some of the blow-by gas is drawn into the carburettor via the air cleaner (C).



Crankcase Emissions

Emission of hydrocarbons from the engine crankcase is another source of automotive air pollution. This emission occurs in the following manner.

During the combustion process in all petrol engines, some gases escape past the piston rings and into the crankcase. These gases contain unburned fuel. This "blow-by" occurs because of the very high pressures in the combustion chambers.

Evaporative Emissions

Another source of emissions from automobiles is evaporation of petrol. This occurs, not only when the fuel tank is being filled, but at other times, even when the vehicle is not in operation.

Evaporative Emission Control (EEC) System

The fuel vapours are directed from the liquid/vapour separator tank to the engine oil pan and purged via the PCV system. In order to prevent vapours flowing to the air cleaner, the relief valve on the air cleaner side of the Control Valve remains closed while the check valve to the crankcase is open. The relief valve also compensates pressure/vacuum in the fuel tank.

Air Injection Reaction System

This system reduces hydrocarbon and carbon monoxide emissions by introducing controlled quantities of air into the hot exhaust gas, so that the combustion process can continue. Filtered air is taken from the air cleaner by means of a pump and conducted by means of hoses and steel tubing to the individual exhaust ports where it is injected close to the valve. To prevent backfire in the exhaust system during deceleration an air bypass valve momentarily diverts the injection air flow from the exhaust. A check valve is located at the inlet to each air manifold to prevent backflow of hot exhaust gas into the air injection hoses and pump.

Maintenance

The required emission control systems maintenance operations presented in this Owner's Handbook should be performed by an authorized GMH Dealer.

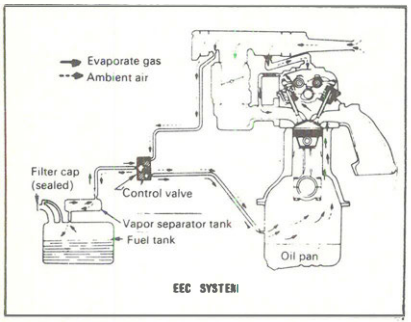
Vehicle Operations

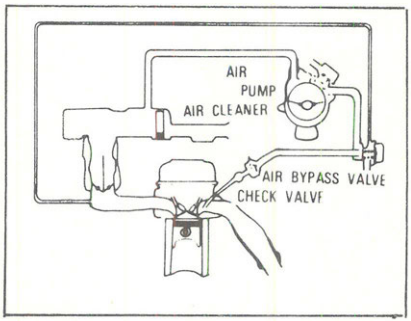
The maintenance instructions contained in the Owner Handbook, are based on the assumption that your vehicle will be used as designed and is operated in accordance with the instruction provided in the handbook.

Service Manuals

Service manuals, providing greater detail on emission systems, are available for purchase by owners. These are available from a GMH Dealer or from:

STAN H. EARLE,
46 ISABELLA STREET,
MOORABBIN 3189
VICTORIA





Vehicle Emission Control Information Label

This label is located on the floor in front of and below the outboard passenger's seat under the floor mat and provides all relative specifications required to correctly tune the engine of your Shuttle.

VEHICLE EMISSION CONTROL INFORMATION

ENGINE TUNE-UP CONDITIONS

MAKE IDLE SPEED AND TIMING ADJUSTMENTS WITH ENGINE AT NORMAL OPERATING TEMPERATURE CHOKE OPEN AIR CLEANER INSTALLED AND DISTRIBUTOR IDLE COMPENSATOR AND EGR VACUUM LINES DISCONNECTED AND PLUGGED AND TRANSMISSION IN NEUTRAL

RECONNECT THE VACUUM LINES WHEN ADJUSTMENTS ARE COMPLETED.

SET PARKING BRAKE AND BLOCK DRIVE WHEELS.

IDLE SPEED AND IDLE MIXTURE SETTING PROCEDURE

1. TURN THE IDLE MIXTURE ADJUST SCREW ALL THE WAY IN AND BACK OUT 4-½ TURNS.
2. ADJUST THROTTLE. ADJUST SCREW TO 950 RPM.
3. ADJUST SETTING OF IDLE MIXTURE ADJUST SCREW TO ACHIEVE THE MAXIMUM ENGINE SPEED.
4. TURN IDLE MIXTURE ADJUST SCREW CLOCKWISE (LEAN) UNTIL ENGINE SPEED IS DOWN TO 900 RPM.
5. RESET IDLE MIXTURE ADJUST SCREW ¼ TURN COUNTERCLOCKWISE (RICH) FROM ITEM 4 POSITION.
6. RESET THROTTLE ADJUST SCREW TO 900 RPM.

IGNITION TIMING SETTING PROCEDURE

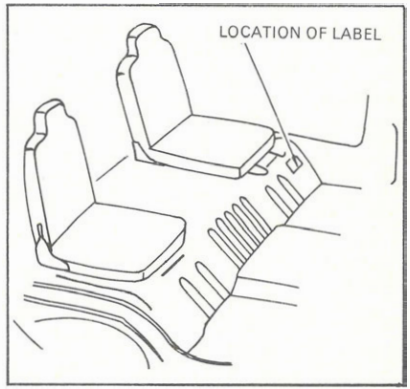
1. SET SPECIFIED IDLE SPEED.
2. CONNECT TIMING LIGHT LEAD TO NUMBER 1 CYLINDER.
3. ALIGN MARK ON CRANKSHAFT PULLEY TO TIMING MARK WITH TIMING LIGHT AIMED TOWARD TIMING MARK.

CAUTION: REMOVAL OF ADJUSTMENT CAP AND ALTERATION TO OTHER THAN SPECIFIED IDLE MIXTURE SETTING MAY VIOLATE STATE LAWS. SEE SERVICE MANUAL FOR FURTHER INFORMATION.

ENGINE	IGNITION TIMING	PLUG GAP	IDLE SPEED	
L4 1800	6° BTDC	1.0 MM	900 RPM	Part No. 8942500120

Service Replacement Parts

The emission control systems of your new vehicle were designed, built and tested using GM parts and the vehicle is certified as being in conformity with Australian Design Rules covering emissions. Accordingly, it is recommended that any replacement parts used for required maintenance services or for the repair of emission control systems be new GM parts. Use of replacement parts which are not of equivalent quality may impair the effectiveness of such systems, and may adversely affect your vehicle Warranty.



Section 4:

Owner Relations and Authorised GMH Dealers

We want you to be happy with your new Shuttle and with the people you deal with while you have the vehicle.

Normally, any problems which may arise with the sales transaction, operation or servicing of your vehicle will be handled by your Dealer's Sales and Service department.

We realise however that, with the best intentions, misunderstandings do occur sometimes.

If you have a problem that has not been settled to your satisfaction here's what to do:

Step 1:

Discuss the problem with one of the Dealer's management people. If you feel you haven't got satisfaction from the Sales Manager or Service Manager—go to the General Manager or the Dealer himself.

Step 2:

If it seems that no-one at the dealership can help fully, write to the Zone Owner Relations Manager in your State outlining your problem and including your name, address and telephone number; the vehicle model number and vehicle identification number; the vehicle delivery date and odometer reading and the Dealer's name and address. This information will be on your Warranty Certificate.

Step 3:

By now you should have satisfaction. If not, you can write to the National Owner Relations Manager, GMH Sales Pty Ltd, P.O. Box 1714 G.P.O., Melbourne 3001.

Always try to sort things out at the Dealership. Owner Relations Managers will have to refer the problem back to the Dealer.

Owner Relations Managers

QUEENSLAND
General Motors-Holden's Sales Pty. Ltd.,
Box 728, G.P.O.,
BRISBANE, QLD. 4001.

NEW SOUTH WALES AND AUSTRALIAN CAPITAL TERRITORY
General Motors-Holden's Sales Pty. Ltd.,
Box 4239, G.P.O.,
SYDNEY, N.S.W. 2001.

VICTORIA AND TASMANIA
General Motors-Holden's Sales Pty. Ltd.,
Box 1273 L, G.P.O.,
MELBOURNE, VIC. 3001.

SOUTH AUSTRALIA AND NORTHERN TERRITORY
General Motors-Holden's Sales Pty. Ltd.,
Box 221, P.O.,
ELIZABETH, S.A. 5112.

WESTERN AUSTRALIA
General Motors-Holden's Sales Pty. Ltd.,
P.O. Box 426,
WEST PERTH, W.A. 6005.

Authorised GMH Dealers

Effective 1/2/82 (Dealers may change without notice, so please check locally).

NEW SOUTH WALES — Metropolitan Dealers

ARNCLIFFE
Suttons Motors (Arncliffe) Pty. Ltd.,
93 Princes Highway

ASHFIELD
Muirs Motors (Ashfield) Pty. Ltd.,
252 Parramatta Road

BALGOWLAH
Ross Hannon Holden
164 Condamine Street

BANKSTOWN
Boyded Bankstown
236-242 South Terrace

BAULKHAM HILLS
Tony Packard Holden
Cnr. Victoria Avenue & Windsor Road

BLACKTOWN
Mitchell & Townsend,
125 Main Street

CABRAMATTA
Ron Hodgson Holden
266 Hume Highway

CAMPBELLTOWN
Clintons Motors Pty. Ltd.,
3-17 Queen Street

CHATSWOOD
Sundell Holden
815-843 Pacific Highway

CHULLORA
Suttons Motors (Chullora) Pty. Ltd.,
Cnr. Hume Highway & Waterloo Road

CROW'S NEST
J. N. Caldwell (Holdings) Pty. Ltd.,
1 Alexander Street

DEE WHY
Graham Patching Holden
Cnr. May and Mooramba Roads

GUILDFORD
Suttons Motors (Guildford) Pty. Ltd.,
662 Woodville Road

HOMEBUSH
Gilbert & Roach Pty. Ltd.,
187 Parramatta Road

HOMEBUSH
Suttons Motors (Homebush) Pty. Ltd.,
112 Parramatta Road

KINGSFORD
John Pelligrini Holden
263-271 Anzac Parade

KINGSWOOD
W. L. Chapman Pty. Ltd.,
107-119 Gt. Western Highway

LAKEMBA
Nash Holden
1018 Canterbury Road

LIVERPOOL
A. C. McGrath & Company,
Cnr. Castlereagh St. & Hume Highway

LIVERPOOL
Pat Cullen's Garage,
324-360 Hume Highway

MIRANDA
W. H. Lober & Co. Pty. Ltd.,
1-3 Kiora Road

MOSMAN
Norman G. Booth Pty. Ltd.,
501 Military Road

NEWPORT BEACH
Sundell Motors Pittwater
Barrenjoey Road

PADSTOW
Purnell Bros. Holden
19 Davies Road

PARRAMATTA
Fair Deal Motors Pty. Ltd.,
65 Church Street

PARRAMATTA
Hillsdon's Pty. Ltd.,
87 Church Street

PENNANT HILLS
Les Vagg Holden
351-355 Pennant Hills Road

RANDWICK
Boyded (Randwick),
265 Avoca Street

ROCKDALE
C. V. Holland Pty. Ltd.,
571 Princes Highway

RYDE
Muirs Motors (Ryde) Pty. Ltd.,
603-605 Victoria Road

ST. MARY'S
Lance Motors Pty. Ltd.,
412 Western Highway

WAITARA
John A. Gilbert Pty. Ltd.,
90 Pacific Highway

WINDSOR
Hawkesbury Valley Motors,
122 George Street.

NEW SOUTH WALES —

Country Dealers & Service Dealers

- ADELONG
- ALBURY
- ARMIDALE
- BALLINA
- BARADINE
- BARHAM
- BARRABA
- BATHURST
- BEGA
- BELLINGEN
- BELMONT
- BLAYNEY
- BOMBALA
- BOURKE
- BOWRAL
- BREWARRINA
- BROKEN HILL
- BULAHDELAH
- CANOWINDRA
- CARDIFF
- CASINO
- CESSNOCK
- COBAR
- COFF'S HARBOUR
- CONDOBOLIN
- COOLAMON

- COOMA
- COONABARABRAN
- COONAMBLE
- COOTAMUNDRA
- COROWA
- COWRA
- CROOKWELL
- CULCAIRN
- DENILIQUIN
- DORRIGO
- DUBBO
- DUNGOG
- EDEN
- FINLEY
- FORBES
- GILGANDRA
- GLEN INNES
- GLOUCESTER
- GOSFORD
- GOULBURN
- GRAFTON
- GRENFELL
- GRIFFITH
- GULARGAMBONE
- GUNDAGAI
- GUNNEDAH
- GUNNING
- GUYRA
- HARDEN
- HAY
- HOLBROOK
- INVERELL
- JERILDERIE
- JUNEE
- KANDOS
- KATOOMBA
- KEMPSEY
- KIAMA
- KURRI KURRI
- KYOGLE
- LAKE CARGELLIGO
- LEETON
- LISMORE
- LITHGOW
- MACKSVILLE
- MAITLAND
- MILTON
- MOLONG
- MOREE
- MORUYA
- MOSS VALE
- MUDGEE
- MULLUMBIMBY
- MUNGINDI
- MURWILLUMBAH
- MUSWELLBROOK
- NARRABRI
- NARRANDERA
- NARROMINE
- NEWCASTLE
- NOWRA
- NYNGAN
- ORANGE
- PARKES
- PEAK HILL
- PICTON
- PORT MACQUARIE
- QUIRINDI
- SINGLETON
- SPRINGWOOD
- TAMWORTH
- TAREE
- TEMORA
- TENTERFIELD
- TORONTO
- TOTTENHAM
- TRANGIE
- TULLAMORE
- TUMBARUMBA
- TUMUT
- TWEED HEADS
- VALLEY HEIGHTS
- WAGGA
- WALCHA
- WALLA WALLA
- WALGETT
- WARIALDA
- WARREN
- WAUCHOPE
- WELLINGTON
- WEST WYALONG
- WINGHAM
- WOLLONGONG
- WOODENBONG
- WYONG
- YASS
- YOUNG

VICTORIA — Metropolitan Dealers

BENTLEIGH
Boyanton Holden
280 Centre Road

BERWICK
Ross Holden
Princes Highway

BRAYBROOK
Kevin Dennis Holden
272 Ballarat Road

BUNDOORA
Watson Holden
413 Grimshaw Street

BURWOOD
Dustings Holden
1200 Toorak Road

CAULFIELD
Booran Holden
1049 Glenhuntly Road

CHELSEA
Harrison Holden
370 Nepean Highway

CHELTENHAM
Balmoral Holden
1190 Nepean Highway

DANDENONG
Bill Patterson-Cheney Ltd.,
200 Cheltenham Rd.

DANDENONG
Graeme Blanchard Motors Ltd.,
Princes Highway

DONCASTER
Lance Dixon Holden
601 Doncaster Road

ELSTERNWICK
Reg. Hunt Motors Pty. Ltd.,
77 Nepean Highway

ESSENDON
Preston Motors (Essendon)
207-211 Keilor Road **Pty. Ltd.,**

FAWKNER
M. S. & G. Mantello Holden
1263 Sydney Road

FERNTREE GULLY
Neilson Holden F.T.G.,
980 Burwood Road

FOOTSCRAY WEST
Alan Mance Holden
435 Barkly Street

FOOTSCRAY
Bill Patterson Cheney Ltd.,
130 Moreland Street

FRANKSTON
Bayside Holden
140 Dandenong Road

GLEN WAVERLEY
Geoff Brady Holden
565-577 Springvale Road

HASTINGS
McRae Holden
762 Hastings Road

HEIDELBERG WEST
Northpoint Holden
66 Bell Street

LILYDALE
Noel Dight Holden
Main Street

MORNINGTON
Peninsula Holden
Cnr Nepean Highway & Tyabb Road

NORTH MELBOURNE
Bob Jane Southern Motors
19 Flemington Road **Pty. Ltd.,**

OAKLEIGH
Garry & Warren Smith Pty. Ltd.,
1575 Dandenong Road

PRESTON
Graham Hunt Holden
518 High Street

RINGWOOD
Bill Patterson Holden
45-57 Maroondah Highway

SOUTH MELBOURNE
John Martin Holden
132 Sturt Street

WERRIBEE
Ballan Holden
Princes Highway

WEST MELBOURNE
Reg Hunt Motors Pty. Ltd.,
577 King Street

VICTORIA — Country Dealers & Service Dealers

- ALEXANDRA
- ARARAT
- BACCHUS MARSH
- BAIRNSDALE
- BALLARAT
- BENALLA
- BENDIGO
- BIRCHIP
- BOORT
- CAMPERDOWN
- CASTERTON
- CASTLEMAINE
- CHARLTON
- COBRAM
- COHUNA
- COLAC
- COLERAINE
- CORRYONG
- DAYLESFORD
- DERRINALLUM
- DIMBOOLA
- DONALD
- DROUIN
- ECHUCA
- EUROA
- FOSTER
- GEELONG
- HAMILTON
- HEALESVILLE
- HEATHCOTE
- HOPETOUN
- HORSHAM
- KANIVA
- KERANG
- KOOWEERUP
- KORUMBURRA
- KYABRAM
- KYNETON
- LANG LANG
- LEONGATHA
- MAFFRA
- MANSFIELD
- MARYBOROUGH
- MILDURA
- MINYIP
- MORTLAKE
- MORWELL
- MYRTLEFORD
- NAGAMBIE
- NHILL
- NULLAWIL
- NYAH
- ORBOST
- OUYEN
- PORTLAND
- QUAMBATOOK
- RAINBOW
- ROCHESTER
- RUTHERGLEN
- SALE
- SEA LAKE
- SEYMOUR
- SHEPPARTON
- ST. ARNAUD
- STAWELL
- SWAN HILL
- TALLANGATTA
- TIMBOON
- TRARALGON
- UNDERBOOL
- WANGARATTA
- WARRACKNABEAL
- WARRNAMBOOL
- WODONGA
- WONTHAGGI
- WYCHEPROOF
- YARRAM
- YARRAWONGA

AUSTRALIAN CAPITAL TERRITORY

- CANBERRA (Suburban Locations)
- BELCONNEN
- BRADDON
- FYSHWICK
- PHILLIP

QUEENSLAND — Metropolitan Dealers

ASPLEY
Zupp (Aspley) Pty. Ltd.,
1442 Gympie Road

BEENLEIGH
Midways Holden
George Street

CLEVELAND
Russell Smith Holden
Queen Street

IPSWICH
Irving Holden
154 Brisbane Street

MOOROOKA
John Sivyer Pty. Ltd.,
1606 Ipswich Road

MT. GRAVATT
Zupps Motors Pty. Ltd.,
1310 Logan Road

NEWSTEAD
Eagers Retail Pty. Ltd.,
95 Breakfast Creek Road

NUNDAH
Eagers (Northside)
Cnr. Sandgate Rd. & Wood St.

OXLEY
Wayne Hill Holden,
2193 Ipswich Road

PETRIE
North Pine Motors Pty. Ltd.,
Bruce Highway

REDCLIFFE
Village Holden
425 Elizabeth Avenue

SPRINGWOOD
Midways Holden
Pacific Highway

WINDSOR
Leach Motors
Newmarket Road

WOOLOONGABBA,
Eagers (Southside),
Cnr. Logan Road and Trafalgar Street

WYNNUM
Doug Barton Holden
200 Tingal Road

QUEENSLAND — Country Dealers & Service Dealers

- ATHERTON
- AUGATHELLA
- AYR
- BEAUDESERT
- BEERWAH
- BILOELA
- BOWEN
- BUNDABERG
- CABOOLTURE
- CAIRNS
- CHARLEVILLE
- CHARTERS TOWERS
- CLERMONT
- CLONCURRY
- CUNNAMULLA
- DALBY
- DIRRANBANDI
- EMERALD
- GATTON
- GAYNDAH
- GLADSTONE
- GOONDIWINDI
- GYMPIE
- INGHAM
- INNISFAIL
- JANDOWAE
- JULIA CREEK
- KILCOY
- KINGAROY
- LAIDLEY
- LONGREACH
- MACKAY
- MAREEBA
- MARYBOROUGH
- MILES
- MITCHELL
- MONTO
- MOURA
- MT. ISA
- MURGON
- NAMBOUR
- NANANGO
- NOOSA HEADS
- PROSERPINE
- QUILPIE
- ROCKHAMPTON
- ROMA
- SOUTHPORT
- SPRINGSURE
- STANTHORPE

- ST. GEORGE
- TARA
- TEXAS
- TOOWOOMBA
- TOWNSVILLE
- TULLY
- WARWICK
- WINTON
- YULEBA

SOUTH AUSTRALIA — Metropolitan Dealers

ADELAIDE
City Holden,
215 Grenfell Street

ADELAIDE
Freeman Motors Ltd.,
72 Franklin Street

ELIZABETH
Peter Page Holden
Elizabeth Way

GLENELG
John H. Ellers Pty. Ltd.,
282 Brighton Road

MALVERN
Claridge Motors Pty. Ltd.,
361-367 Unley Road

MODBURY
Plaza Holden
817-839 North East Road

PORT ADELAIDE
Smith Motor Co. Pty. Ltd.,
171 Commercial Road

SOUTH AUSTRALIA — Country Dealers & Service Dealers

- BALAKLAVA
- BERRI
- BORDERTOWN
- BRINKWORTH
- BURRA
- CLEVE
- CRYSTAL BROOK
- CUMMINS
- GLADSTONE
- JAMESTOWN
- KADINA
- KEITH
- KIMBA
- KINGSCOTE
- KINGSTON
- LAMEROO
- LOXTON
- MAITLAND
- MALLALA
- MANOORA
- MENINGIE
- MILLICENT
- MT. BARKER
- MT. GAMBIER
- MURRAY BRIDGE
- MURRAYVILLE
- NARACOORTE
- ORRORO0
- PETERBOROUGH
- PORT AUGUSTA
- PORT LINCOLN
- PORT PIRIE
- QUORN
- RENMARK
- STRATHALBYN
- STREAKY BAY
- TANUNDA
- VICTOR HARBOR
- WAIKERIE
- WHYALLA
- WUDINNA
- YANKALILLA
- YORKTOWN

WESTERN AUSTRALIA — Metropolitan Dealers

BELMONT
Major Motors (1980) Pty. Ltd.,
225 Great Eastern Highway

CANNINGTON
Brian Gardner Motors Pty. Ltd.,
1308 Albany Highway

FREMANTLE
Shack Motors
59 Queen Victoria Street

GOSNELLS
Lance Gibbons Holden
2325 Albany Highway

MELVILLE
Melville Motors Pty. Ltd.,
532-536 Canning Highway

MIDLAND
John Goldie Holden
37 Great Northern Highway

MORLEY
Metro Motors Pty. Ltd.,
212 Walter Road

NAVAL BASE
Shack Motors Cockburn Pty. Ltd.,
Rockingham Road

OSBORNE PARK
North City Pty. Ltd.,
Cnr. Scarborough Beach Rd.
& Harbourne Street

PERTH
City Motors Pty. Ltd.,
505 Newcastle Street

VICTORIA PARK
Young's W.A. (1975) Pty. Ltd.,
529 Albany Highway

WANNEROO
Phoenix Holden
316 Berriman Drive

WESTERN AUSTRALIA— Country Dealers & Service Dealers

- ALBANY
- BEVERLEY
- BOYUP BROOK
- BROOKTON
- BRUCE ROCK
- BUNBURY
- BUSSELTON
- CARNAMAH
- CARNARVON
- COLLIE
- CORRIGIN
- CRANBROOK
- DALWALLINU
- ESPERANCE
- GERALDTON
- GNOWANGERUP
- GOOMALLING
- HARVEY
- KALGOORLIE
- KARRATHA
- KATANNING
- KELLERBERRIN
- KUNUNURRA
- MANDURAH
- MANJIMUP
- MERREDIN
- MOORA
- MORAWA
- MT. BARKER
- MULLEWA
- NAREMBEEN
- NARROGIN
- NORTHAM
- PINGELLY
- PORT HEDLAND
- QUAIRADING
- WAGIN
- WONGAN HILLS
- WYALKATCHEM

TASMANIA — Metropolitan & Country Dealers & Service Dealers

HOBART
Motors Pty. Ltd.,
179 Macquarie Street

BURNIE
Motors Pty. Ltd.,
54 Marine Terrace

DEVONPORT
Motors Pty. Ltd.,
24 Best Street

HUONVILLE
Motors Pty. Ltd.,
Main Street

KING ISLAND
King Island Motors Pty. Ltd.,
Currie

LAUNCESTON
Motors Pty. Ltd.,
165 Brisbane Street

SMITHTON
Motors Pty. Ltd.,
16 Nelson Street

ULVERSTONE
Motors Pty. Ltd.,
99 Reibey Street

NORTHERN TERRITORY — Dealers

ALICE SPRINGS
Kittle Bros. (Alice Springs) Pty. Ltd.,
Wills Terrace

DARWIN
Suttons Motors (Darwin) Pty. Ltd.,
Cnr. Mitchell and Knuckey Streets

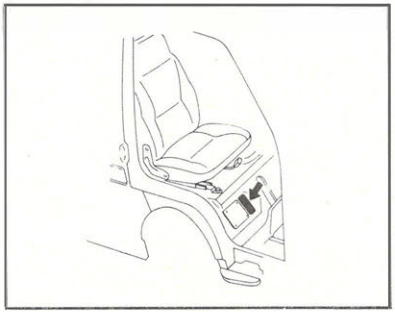
Section 5:

Specifications

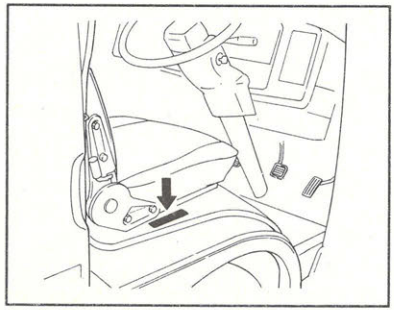
SERIAL NUMBERS:

V.I.N. PLATE:

Vehicle identification plate:
It is attached to the floor in front of and below driver's seat under the floor mat.

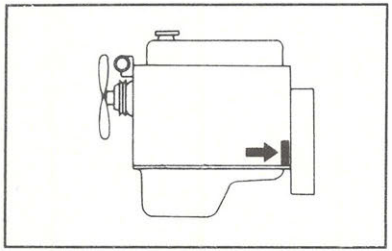


Chassis number:
It is stamped on the floor near the driver's seat.

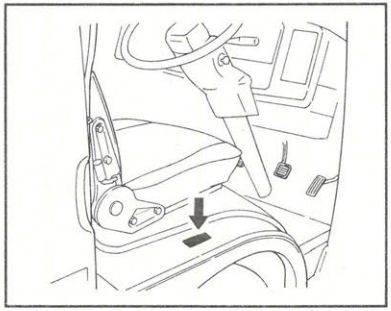


Engine number location:
DIESEL ENGINE—Stamped on pad at lower left side rear of engine block.

PETROL ENGINE—Stamped on pad front right side of engine block.



Tyre Pressure Placard:
Tyre inflation pressure placard is located adjacent to the driver's seat.



5

Main Data and Specifications

	WFR11D	WFR11F	WFR51D	WFR51F
DIMENSIONS mm				
Wheel base	2,350	2,690	2,350	2,690
Tread: Front	1,430			
Rear	1,400			
Minimum ground clearance	200			
Minimum turning radius	4,800	5,400	4,800	5,400
WEIGHT kg				
G.V.M. (Permissible) G.C.M.	2,500			
Trailer without independently controlled brakes	3,000			
With independently operated trailer brakes	3,500			
Axle capacity: Front	1,250			
Rear	1,588			
ENGINE	PETROL		DIESEL	
Model and type	4ZB1 four cycle, water cooled, SOHC, carburetted gasoline.		4FC1 four cycle, water cooled, SOHC, swirl chamber diesel.	
Compression ratio (to 1)	8.5		21.0	
Piston displacement cc	1,817		1,995	
Valve clearance; (at cold)				
Intake mm	0.15		0.25	
Exhaust mm	0.25		0.35	
Injection pressure kPa	—		11,800	
Ignition or injection timing degree/rpm	BTDC 6/900		BTDC STATIC 9°	
Firing order	1-3-4-2			

	WFR11D	WFR11F	WFR51D	WFR51F
ENGINE (Continued)				
Distributor contact point gap mm	0.2 to 0.4		—	
Spark plug gap mm	1.0 to 1.1		—	
Head bolt tightening torque Nm	98		132	
Engine oil capacity litres	4.5		5.5	
Coolant capacity litres	9.0		10.0	
Fuel tank capacity litres	60			
CLUTCH				
Type	Cable control, dry single plate with diaphragm springs.			
Pedal free play mm	20 to 30			
TRANSMISSION				
Model and type	MSG 5K/5L 5 speed, fully synchronized transmission.			

Gear ratio (to 1)	1st	2nd	3rd	4th	5th	Rev.
Petrol MSG5K	4.128	2.497	1.482	1.000	0.855	3.759
Diesel MSG5L	4.697	2.841	1.629	1.000	0.888	4.277

Lubricant capacity (litres)	1.55
Filler and drain plug tightening torque Nm	39

	WFR11D	WFR11F	WFR51D	WFR51F
REAR AXLE				
Type	Banjo semi floating			
Gear ratio	41/9 (4.555)			
Oil capacity (litres)	1.3			
STEERING				
Type	Recirculating ball			
Steering wheel free play mm	10 to 30			
Oil capacity litres	2.0			
Wheel alignment:				
Toe-in mm	4			
Camber	35'			
Caster	1°			
King pin angle	7°25'			
SERVICE BRAKE				
Type	Hydraulic disc in front, self adjusting drum brake in rear with vacuum servo.			
Pedal free play mm	7 to 10			
PARKING BRAKE				
Type	Mechanical internal-expanding, acting on rear wheels.			
Brake lever travel (notches)	16 to 20 (when pulled with a force of 294 N)			

	WFR11D	WFR11F	WFR51D	WFR51F
SUSPENSION				
Type, Front mm	Independent wish bone arms, coil spring with stabilizer bar and hydraulic double acting telescopic shock absorbers.			
Rear	Semi-elliptical alloy steel leaf spring with double-acting hydraulic telescopic shock absorbers.			
WHEELS	Van 4.5J x 14 Window Van and Wagon 5.0J x 14			
TYRES	Van 6.00-14-8PR Window Van and Wagon 185R-14-8PR			
Tyre inflation pressure (cold) psi (kPa)				

		Front	Rear
6.00-14-8PR	Unladen	46 (320)	37 (255)
	Laden	46 (320)	†60 (415)
185R-14-8PR	Unladen	40 (275)	34 (235)
	Laden	43 (300)	†60 (415)

†DO NOT EXCEED THIS PRESSURE

ELECTRICAL			
Type	12 volts system with negative polarity ground		
Battery volt/amp. hr.	N40L (12/40)		NS70 (12/65)
Starter volt/kw	12/0.8		12/2.0
AC generator volt/amp. hr.		12/50	

Bulb Replacement

Headlights

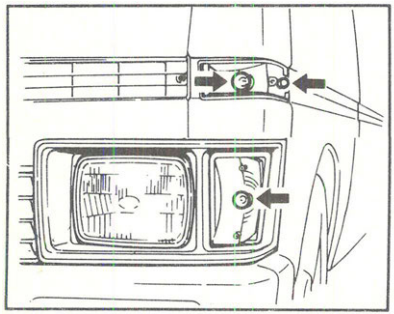
Proper aiming of the headlights is most important to assure correct illumination of the highway without blinding other motorists. Headlamp aiming or replacement should be carried out by your GMH Dealer.

Front parking lights

Remove screws retaining the lens and remove the lens. To remove light bulb, push it in and turn anticlockwise.

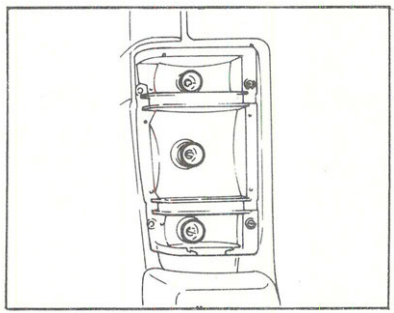
Front and side turn signal lamps

Remove screws retaining the lens and remove the lens. To remove light bulb, push it in and turn anticlockwise.



Rear Combination Lights

Remove screws retaining the lens and remove the lens. Bulb socket sequence from the top downward is, Turn Signal Light, Stop and Tail Light, Back-Up Light.

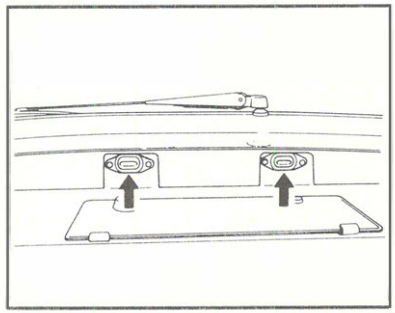


Dome Lights

Access to bulb can be obtained by removing the two screws.

Licence Plate Lights

Remove screws retaining the lens and remove the lens.



Fuse System

When replacing a bulb, make sure it has the correct wattage rating. Standard bulb wattage ratings are given below.

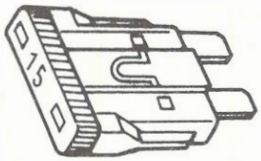
	Wattage
Headlight (Halogen or Sealed beam)	65/55
Parking Lamp	5
Turn signal lights	23
Side turn signal lights	5
Tail/Stop light	8/23
Turn signal light	23
Back up light	23
Licence plate lights	5
Dome light	10
Step lights (where fitted)	5

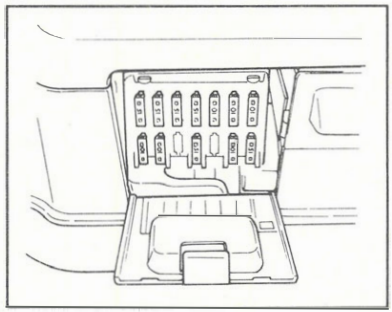
Fuse junction block

The fuse junction block is installed near the ash tray. The cover can be pulled out easily with hand.

If a fuse has been blown check to locate the cause of trouble and give necessary service attention before replacing the fuse.

When replacing the fuse, use a cartridge of the same amperage.





Circuit	Amperage
1. Tail and illumination lights	15
2. Stop light and horn	15
3. Hazard and interior lights	15
4. Cigarette lighter and clock*	15
5. Air conditioning*	15
6. (Petrol engine) Indicator lights, gauges, emission control and charging circuit	15
or	
(Diesel engine) Charging circuit, Q.S.S.I.	15
7. Fuel cut off (Diesel engine)	15
8. Turn signal and back-up light (Petrol and Diesel engine) gauges and indicator lights (Diesel engine)	10
9. Radio*	10
10. Windshield wiper and washer	10
11. Heater	15
12. Rear heater*	15
13. Back door windshield demister*	15
14. Power window*	15

*where fitted

Fusible Link Wires

If the headlights or other electrical components do not work and the fuses are O.K., check the fusible link wires.

If a fusible link wire is melted, it must be replaced.

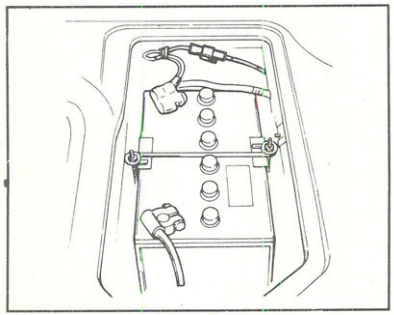
Always use genuine GMH fusible link wires for replacement.

Never use wire—even for a temporary fix. It may cause extensive damage and possibly a fire.

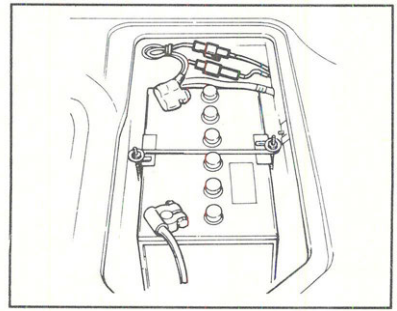
If there is an overload in the circuits from the battery, the fusible link wires are designed to melt before the entire wiring harness is damaged.

The cause of electrical overload should always be determined before replacing the fusible link wires.

PETROL



DIESEL

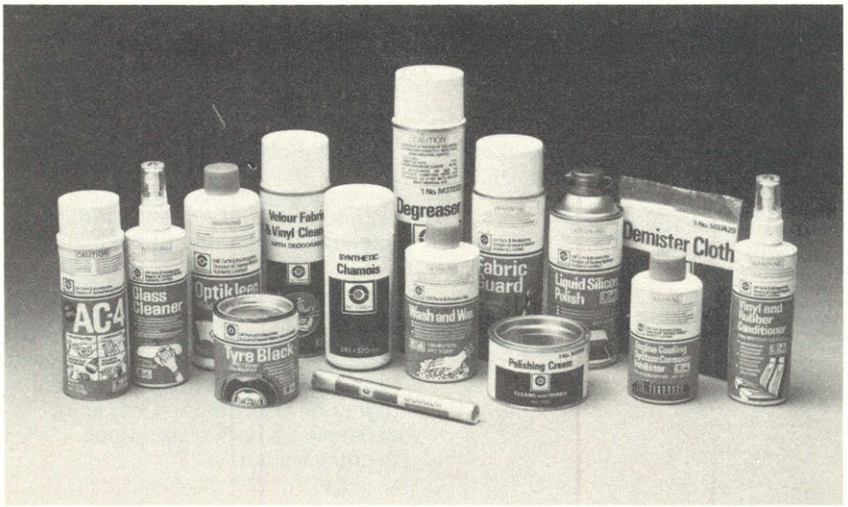


Section 6: Appearance, Maintenance and Service

Paintwork

The paint on your Shuttle is finished in acrylic enamel and will stay bright and new-looking provided you wash and wax it regularly, using approved products. Weekly washing is recommended if the vehicle is being used constantly or if it is not parked under cover.

Before you wash the paintwork, thoroughly wash in and around the front and rear windows and check that door drain holes, tailgate drain holes and rocker sill vents are clean. Hose off any heavy dirt on the glass, but leave final cleaning of the glass until last.



Washing tips

Use either cold or warm water — preferably running.

Use clean chamois cloths, sponges or rags (old, clean linen is better than new material for glass).

Don't wash your vehicle in bright sunlight — it will streak.

Grease and oil can be removed with a little kerosene or white spirits. Flush with water afterwards.

If petrol is spilled during refilling, flush with water immediately.

Be sure that your cleaner, polish or wax is suitable for acrylic finishes. AC Delco Wash & Wax from your GMH Dealer is highly recommended.

Insect spots can be removed with a mixture of 220 grams of baking soda in 2 litres of water. Flush clean afterwards. New tyre look can be restored with AC Delco Tyre Black from your GMH Dealer.

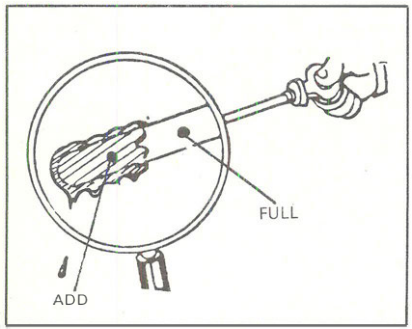
Tarnished chrome responds well to AC Delco Polishing Liquid.

Oil

CAUTION: As with any machinery, extreme care should be taken when carrying out any inspections or maintenance job. If you have any doubts about your own ability, please have the job done by a qualified mechanic.

Initial Oil Fill

A high quality SE oil was installed in your petrol engine at the factory. In the diesel a high grade CD oil was installed. It is not necessary to change this factory-installed oil prior to the recommended normal change period. However, check the oil level more frequently during the running-in period since higher oil consumption is normal until the piston rings become seated.



NOTE: Non-detergent and other low quality oils are specifically not recommended. Only the use of SE or SF engine oils for petrol and CD engine oil for diesel and proper oil and filter change intervals assure you of continued proper lubrication of the engine.

Maintaining Oil Level

The oil level indicator is marked ADD and FULL. The oil level should be maintained between the two markings, neither going above the FULL marking nor under the ADD marking. Check the oil level frequently and add oil when necessary.

To check the oil level accurately, the vehicle must first be on level ground and the engine should be stopped for at least ten minutes. Checking the oil level too soon after stopping the eingine will not allow sufficient time for oil, which has circulated to the upper parts of the engine, to drain back into the engine oil pan, and consequently, a false low reading will be obtained. Topped up under these conditions will result in the oil pan being over-filled.

Remove the indicator, wipe it clean with clean cloth or paper before reinserting it firmly. Pause for a second then withdraw the indicator to check the reading of the oil level.

The distance between the ADD and FULL marks represent approximately 1 litre on all engines. Oil level should be checked more often during the running-in period since somewhat higher oil consumption could be experienced until piston rings become seated.

Oil Consumption

In many cases, it is erroneously thought that engines should not use any noticeable amount of oil between oil changes. In actual fact every internal combustion engine should use a certain amount of oil to act as a lubricating and cooling agent especially during the running-in period.

There are several factors that contribute to oil consumption, apart from mechanical malfunction, that should be noted, and these are: the type of oil, the seating of piston rings, the oil level, and the conditions under which the vehicle is operated.

Running-in

The initial factory-fill oil should remain in the engine for the recommended period. (Refer this section.) Oil consumption may be high during the running-in period.

Lubrication

An engine is dependent on oil to lubricate the cylinder walls, pistons, rings and valve stems. A film of oil is left on the cylinder walls and burned on the next firing stroke while the film on the valve stems is drawn into the combustion chamber and burned. These quantities, while small, explain why an engine does use some oil.

Oil Level

Maintaining a proper oil level is also an important factor in controlling oil consumption. An overfull crankcase allows the reciprocating parts of an engine to splash oil on to the cylinder walls in quantities greater than the piston rings can control. This excess oil will be drawn into the combustion chambers and burned.

Overfilling the crankcase can result if the oil level indicator markings are not understood. (Refer to previous notes.)

Dilution

Probably the most prevalent complaint of oil consumption comes from the motorist whose vehicle is driven at below normal operating temperatures for long periods of time. The oil becomes diluted by fuel and moisture which settle in the crankcase, raising the oil level and creating a false reading on the oil level indicator. For example, in a vehicle that has accumulated 1500 kilometres of city operation and has consumed a normal amount of oil, the level may not have dropped from the FULL mark, due to dilution. If this vehicle is then driven for some distance at highway speeds on a warm day, the dilution elements evaporate, lowering the oil level and the motorist assumes the oil is being lost.

Speed Consumption

Sustained high engine speeds will increase oil consumption because higher speeds increase engine temperatures which lower oil viscosity and allow more oil to reach the combustion chamber.

If it is considered that the above possibilities can be accounted for but excessive oil consumption appears to continue, then it is recommended that you discuss the situation with a GMH Dealer.

NOTE: Non-detergent and other low quality oils are specifically not recommended. The use of break-in oils, tune-up compounds, friction-reducing compounds and other supplemental additives are not recommended; their use will only increase operating costs.

REMINDER: The use of proper engine oils and observing oil change intervals are your best assurance of continued reliability and performance from the engine of your vehicle.

In the event of an operational problem, consult your GMH Dealer for advice before using supplemental additives.

Oil Filter Replacement

The full-flow oil filter, with non-return check-valve, filters all the engine oil delivered by the oil pump. For this reason the interval of filter change is very important.

The oil filter should be replaced as shown in the maintenance schedule.

Under prolonged dusty driving conditions it is recommended that the oil filter be replaced more often.

NOTE: After the oil filter has been replaced, additional oil must be added.

Always use AC brand of oil filters, for replacement purposes.

Diesel Engine

Fuel Requirements

Use Diesel fuel of 47 cetane rating or higher.

Petrol Engine

Fuel Requirements

The vehicle is designed to operate on a good quality clean fuel and 89 octane rating. The use of a fuel which is too low in anti-knock property will result in "Detonation" (a metallic rapping noise generated during the combustion process). If "Detonation" persists, consult an authorized GMH Dealer. Continued operation of an engine which exhibits symptoms of "Detonation", may result in damage for which General Motors-Holden's Sales Pty. Limited is not responsible under the terms of the Warranty.

Oil Change Intervals

The amount of time between changes depends a lot on what you use the vehicle for, and where it is driven.

The table indicates oil change intervals for vehicles used "normally".

If you usually drive on dusty roads; if you often take long trips; or—strangely enough—if you only use your vehicle for short trips, you will need to change the oil more often. Say every month or every 5,000 kilometres.

NORMAL OPERATING CONDITIONS

Prevailing Daytime Temperatures	Regular Oil Change Interval
ABOVE 10°C	EVERY 3 MONTHS OR 5000 KM — WHICHEVER OCCURS FIRST
BELOW 10°C	EVERY 1 MONTH OR 2500 KM — WHICHEVER OCCURS FIRST

ABNORMAL OPERATING CONDITIONS—EVERY 1 MONTH OR 5000 KM

Lubrication

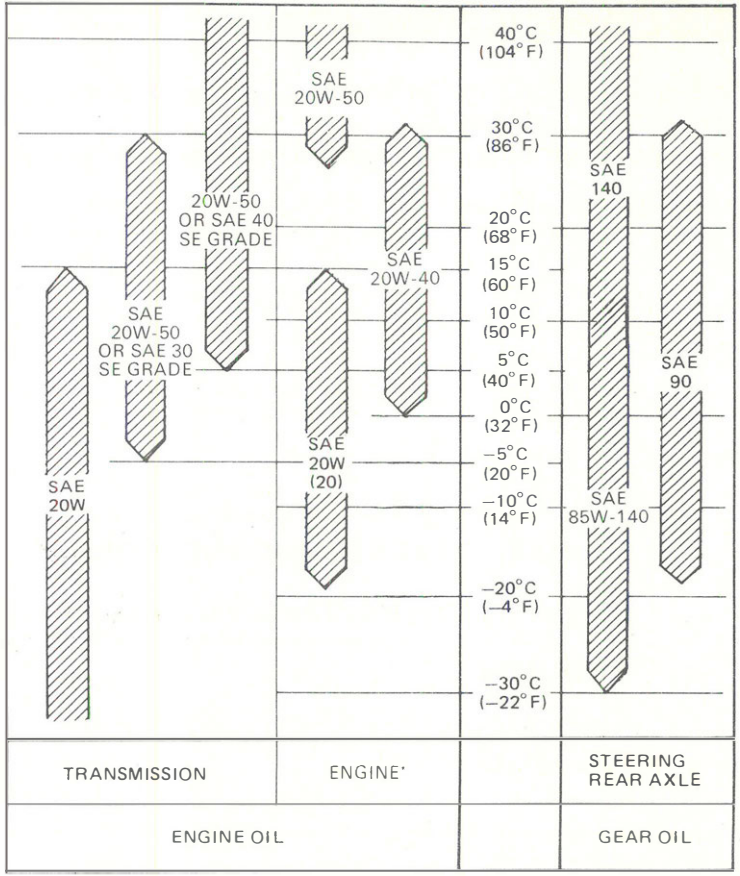
Lubricants should be carefully selected according to the lubrication chart. It is also important to select viscosity of lubricants according to the atmospheric temperature by referring to the following table.

ENGINE OIL

Use SE engine oil for petrol engine, and CD engine oil for diesel engine.

NOTE: Non-detergent and other low quality oils are specifically not recommended. The use of SE engine oils for petrol engine (CD for diesel engine) and proper oil and filter change intervals promote continued reliability and performance from your engine.

The proper oil viscosity also helps cold and hot starting.



*In engine use correct grade oil. SE grade Petrol engines. CD grade Diesel engines.

Transmission Oils

Manual Transmission

Check the oil level every six months or 10,000 kilometres whichever comes first—and add oil to the level of the plug hole if necessary.

The oil should be changed at the six months or 10,000 service, then every two years or 40,000 kilometres.

To check the fluid level:

The "FULL" mark on the fluid level indicator represents the correct level for a transmission at operating temperature.

To reach operating temperature a journey of approximately 16 kilometres in stop start conditions is recommended.

Rear Axle Oil

This should be checked every six months or 10,000 km whichever comes first. If necessary, add oil to bring the level of the oil to the plug hole.

Servicing

As all adjustments, cleaning and servicing of automatic transmissions requires specialized equipment and knowledge it is recommended that these operations be performed by an authorized GMH Dealer.

Lubricants and Filters

Chassis

Engine Oil
Use oil to specifications. (Refer pages 00-00 for grades and application.)

Transmission Oil
Use same oil as above (Engine Oil).

Rear Axle Oil
Use Multipurpose Hypoid gear oil in this order of preference, HN 1386 or HN 1187 or HN 1181.

Front Suspension and Steering Ball Joints
E.P. Type Lithium grease. Always ensure that a high quality grease of suitable type is used.

Front Wheel Bearings
Grease to HN 1227 specification.

Brake Fluid
Fluid to GM 4653M Type 450 specification.

Control Systems
Brake and Clutch Pedal Pivots, Clutch Linkage, Transmission Control Linkage, Accelerator Pivots, Parking Brake System, Pivot and Guides. Grease to HN 1225 (LG-2) specification.

Body
Normal use of a vehicle causes metal-to-metal movement at certain points in the body. Noise, excessive wear and improper operation at these points will result when a protective film of lubricant is not provided. Servicing and lubrication should be an integral part of the lubrication service and should be checked out as required every 6 months or 10,000 kilometres.

Powdered Graphite
(Apply through key aperture)
Door Lock Cylinder
Instrument Panel Compartment Lock Cylinder
End-Gate Lock Cylinder

Non-Staining Grease or Zinc Oxide Grease
(Use sparingly on parts likely to be contacted by clothing)
Engine Hood Catch and Lock
Engine Hood and Door Hinges
End-Gate Locking Mechanism and Hinges

Solidoil
(Use sparingly on working surfaces)
Door Lock Fork
Door Lock Striker Bolt

IMPORTANT: Remove all lubricants that may have dropped or spread onto the external paint finish.

Cooling System

This must be serviced regularly if the engine is to operate efficiently.

Rust Protection

High purity water should be used with a GMH approved anti-rust fluid. If you live in an area where water has a high level of mineral or chemical content, use rainwater or distilled water and add GMH HN1791 in correct proportion to cooling system.

If you need to use borewater in an emergency—change it for clean water as soon as possible.

Follow the directions on the pack when adding an anti-rust fluid.

Radiator Pressure Cap

Because of this cap your engine can work at over 100°C without boiling.

If your engine should overheat, refer to instructions on page 47.

Filling the cooling system

With the engine cold fill the radiator until coolant enters the reservoir via the overflow outlet tube. Fit the radiator cap and start the engine.

During the warm-up period coolant will be expelled from the radiator into the reservoir due to expansion.

When the engine is at normal operating temperature check the coolant level in the reservoir and, if required, top up to the "MAX. Level when hot" position shown on the reservoir. SUBSEQUENT topping-up of the reservoir, with the engine hot, will ensure that the radiator is always full without having to remove the radiator pressure cap.

Draining and Flushing

Every six months or 10,000 km drain and refill the radiator and add a GMH approved corrosion inhibitor coolant. To drain the radiator—loosen the cap, locate the lower radiator hose and loosen the clamp fastening this hose to the radiator. Now disconnect this hose.

Do not use cleaning chemicals to loosen scale unless the cooling system is afterwards thoroughly reverse flushed, otherwise loosened scale will clog the radiator water passages.

For complete removal of loose sediment and sludge from the radiator and water jacket, pressure flushing with an air and water gun is recommended, and as this method of flushing requires special equipment we suggest you have this work carried out by your GMH Dealer.

Anti-freeze Fluid

This is essential if your car is run for any length of time in snow areas.

The recommended brand—GM 6038M—can be supplied by your GMH Dealer.

It contains an anti-rust element as well.

If this product is not available and you need to park overnight in a snow area you must drain the main radiator and cylinder case. Otherwise, your radiator may burst or the cylinder case crack.

CAUTION: Draining of the main radiator and cylinder case assembly will not drain the water out of the heater radiator; therefore, the use of Anti-Freeze will eliminate the risk of a damaged heater core.

NOTE: Anti-freeze provides the action of a corrosion inhibitor, eliminating the necessity for a separate additive.

Where a vehicle is to be parked overnight or operated for any length of time in regions where temperatures of 0°C or below are encountered (e.g.—snow areas), the recommended brand of anti-freeze fluid should be used in the cooling system in accordance with the instructions specified.

COLD WEATHER DRAINING

If the recommended brand of anti-freeze fluid is not available, the radiator, and cylinder case, MUST be drained before parking to prevent the possible bursting of the radiator, or cracking of the cylinder block which can occur if the coolant freezes.

CAUTION: Draining of the main radiator and cylinder case assembly will not drain the water out of the heater radiator; therefore, the use of Anti-freeze will eliminate the risk of a damaged heater core.

Corrosion Inhibitor HN1791 (PART No. M38866)

It is recommended that engine coolant system corrosion inhibitor HN-1791 be added after regular draining:

MIXING INSTRUCTIONS

The recommended quantity, for the particular engine, should be added to a bucketful of water and stirred before pouring the water into the radiator. Then complete the filling of the cooling system with water. It is not recommended that water be added to a container, into which the inhibitor has first been poured.

COLOUR INDICATIONS

Initially, the inhibitor will cause a pale transparent green colouration to the water. After some time the colouration may change to greenish-yellow. In either case, these colours indicate that the cooling system is being protected by the inhibitor.

NEW RADIATOR PROCEDURE

Where a new radiator is fitted, use inhibitor HN-1791 and drain after the first 6 months or 10,000 kilometres.

Brake Master Cylinder

Every 6 months or 10,000 kilometres check the fluid level in the master cylinder. The fluid level visible through the reservoir should be maintained between the MIN and MAX level markings. If the fluid is between these levels do not remove master cylinder cap. If the master cylinder requires constant topping up it could indicate that a malfunction exists in which case it should be immediately brought to the attention of your servicing GMH Dealer.

The recommended brake fluid is Delco brake fluid G.M. Spec. 4653M type 450.

Battery (12 volt)

The battery is located in a metal cradle mounted on the left hand fender skirt in the engine compartment and the negative (−) terminal is "grounded". Never disconnect the battery or generator when the engine is running. Always connect Positive (+) to Positive (+), Negative (−) to Negative (−) whenever a battery charger is used.

Fluid Level

The battery fluid level should be maintained at 1 cm above the plates by adding distilled water. Distilled water will be required more frequently in summer than in winter. It is a good plan to check the fluid level at about 1 month intervals in Summer and two months in Winter. When long daylight runs are made, water may need to be added still more frequently. Do NOT overfill, particularly when cold, as subsequent operation at higher temperatures and on long distance driving may cause loss of acid. Keep all battery terminals clean and tight.

When cleaning batteries, wash first with a dilute ammonia or soda solution to neutralize any acid present. Then flush off with clean water. Care must be taken to keep the vent plugs tight so that the neutralizing solution does not enter any cells. Dry off the affected area of the body, battery mounting and retainer, then repaint with paint resistant to sulphuric acid. After reconnecting battery cables, apply a thin coating of petroleum jelly to the battery posts and cable clamps to help retard corrosion.

CAUTION: Never expose a battery to open flame or electric spark—battery action generates hydrogen gas which is flammable and explosive. Don't allow battery fluid to contact skin, eyes, fabrics, or painted surfaces—battery fluid is a sulphuric acid solution which could cause serious personal injury or property damage. Flush any contacted area immediately with water. WEAR EYE PROTECTION SUCH AS INDUSTRIAL SAFETY SPECTACLES OR GOGGLES WHEN WORKING ON OR NEAR A BATTERY. Remove rings, metal watchbands and other metal jewellery before jump starting or working around a battery, and be careful in using metal tools—if such metal should contact the positive battery terminal (or metal in contact with it) and any other metal on the vehicle, a short circuit may occur which could cause personal injury. Batteries and battery acid should always be kept out of the reach of children.

Air Cleaner

The air cleaner element should be removed and cleaned every 6 months or 10,000 km and replaced every 24 months or 40,000 km. If the vehicle is operating in extremely dusty conditions for any length of time the air cleaner should be cleaned more frequently.

Ensure that the thermal vacuum signal hose is connected to the carburettor and air cleaner when re-installing the air cleaner.

CAUTION: Do not remove the engine air cleaner unless temporary removal is necessary during repair or maintenance of the vehicle. When the air cleaner is removed backfiring can cause fire in the engine compartment.

Engine Ventilation Filter

The engine ventilation filter is located in the air cleaner cover.

Every 12 months or 20,000 kilometres clean the engine ventilation intake filter with kerosene or a suitable solvent. Dry with compressed air.

EVAPORATIVE CONTROL SYSTEM

Every 24 months or 40,000 kilometres check all fuel and vapour lines and hoses for proper connections and correct routing as well as condition. Remove canister and check for cracks or damage. Replace damaged or deteriorated parts as necessary. Replace filter in lower section of canister.

WINDSHIELD NOTES

Windshield Cleanliness

It is important, at all times, that the windshield surface be maintained in a clean condition so that the wiper blades may be as effective as possible in wiping clean the surface.

Use of the windshield washer and Optikleen washer solvent will assist in removing dirt and dust particularly when driving at a time when no rain is falling; however, every opportunity should be taken to wipe or wash the windshield by hand (most Service Stations have such a service today as a courtesy item).

Abrasive materials must never be used to remove a build-up of road scum, etc., as a scratched windshield will cause difficulty in achieving proper vision, particularly in night driving. Therefore, after the windshield has been cleaned with a wet sponge, etc., it should be wiped dry with a soft, lint free cloth or even a ball of newspaper.

WIPER WASHER OPERATIONS

Wiper Blades—Cleaning

Much of the oil road scum thrown up onto the windshield glass, causing smearing when the wiper is switched on, transfers onto the wiper blade. Many owners, whilst they methodically clean the windshield glass, omit to clean the wiper blades and consequently smearing of the glass re-appears immediately the wiper blades are set in motion.

The blades can be cleaned by simply lifting them off the windshield glass and then using warm water and a recognised washing fluid. If so desired, the wiper blade can be removed from the arm for cleaning purposes by simply disengaging it from the arm in accordance with the following instructions:—

1. Lift up tab at the end of the arm and remove blade sideways.
2. To replace, slide the blade pin into the hole in the arm clip, noting an audible click.

Washer Reservoir

A plastic reservoir containing liquid for the windshield washer is mounted in the passenger compartment for front wipers left hand rear compartment for rear wipers. It is suggested that when checking the radiator coolant level, the washer reservoir be checked also. For a crystal clear view Optikleen Washer Solvent (Part Number M37068) can be used by adding from the graduated container, the recommended proportion.

CAUTION: Do not operate the wiper blades by hand as this may damage the wiper drive mechanism.

In dry conditions, if the wiper blades are used to clean dust and dirt from the windshield always use the washer system to wet the windshield. Ensure that the windshield washer reservoir is checked regularly all the year round.

Should the wiper blades be frozen to the windshield, it is imperative that they be lifted off and freed by hand before switching on the windshield wiper system.

Tyres

For correct tyre inflation pressures for your vehicle refer page 71.

Always check tyre pressure when the tyres are cold, and always use a tyre pressure gauge. Your eye can deceive.

Tyre Pressure Recommendations

1. Tyre pressures should be checked when the tyres are cold (when the vehicle has been standing for 3 hours or more, or driven less than 2 kilometres).
2. Tyre inflation pressure may increase as much as 4 psi (30 kPa) when hot, (after the vehicle has been driven 15 kilometres or at speeds of more than 95 km/h). DO NOT reduce pressures to compensate for this build up. As a guide for checking warm/hot tyres under all conditions, allow pressure to read 4 psi (30 kPa) above the recommended.
3. It is recommended that the pressures are checked at least weekly. For constant long distance or rough road travelling daily checking is recommended. To maximise the protection of tyres on vehicles operating for prolonged times over rough roads, i.e. particularly in outback conditions, it is recommended that the cold tyre inflation pressure recommended for maximum load condition as shown on the tyre chart be used.
4. Do not forget the spare tyre: It is advisable to maintain the spare at the **maximum recommended tyre inflation pressure listed on the tyre chart.**

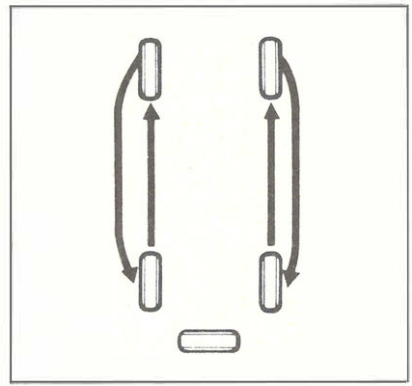
Tyre Rotation

If no abnormal or uneven wear is evident, if you have not experienced any vibration, tyres need not be rotated.

Front tyres are more prone to wear on the shoulder while rear tyres wear more on the crown. Wear can be evened out by rotating the tyres.

Check them at the 5,000 km inspection, then at intervals of 10,000 km. Your GMH dealer will be able to diagnose any unusual signs of wear and can also balance the wheels and tyres for you.

RADIAL TYRE ROTATION



Tyre Replacement

Use only tyres recommended. Don't mix cross ply and radial ply tyres on your vehicle and don't mix radial ply tyres with other types of tyres. New tyres should be fitted in pairs to the front but if replacing only one tyre, pair it with the least worn of the old tyres.

And if you replace all tyres with tyres of a different size, your speedometer readings may be affected. Have the car checked afterwards.

Tyres with a higher speed rating and/or with a maximum load rating in excess of that listed on the tyre placard for tyre size listed are also acceptable as replacements provided they are fitted to a suitable rim size.

Uneven or abnormal tyre wear is usually the result of incorrect inflation pressure, improper wheel alignment, wheels being out of balance, or poor driving habits. The original equipment tyres incorporate built-in tread wear bars which act as indicators to assist in determining when the tyres have worn to the point of needing immediate replacement.

When the wear bars appear, tyre replacement should not be delayed, in the interests of safety.

Heavy Treads

Caution must be exercised when using tyres with heavy treads, including tyres designed to gain traction in bad weather conditions.

At sustained high speeds, this type of tyre will run at higher temperatures than standard tyres and consequently should only be operated within the limits recommended by the manufacturer.

Any doubts concerning the fitness of the tyres on your vehicle for the purpose you require should be referred to your GMH Dealer, who will be pleased to advise.

Tyres and Long Distance Motoring

For trouble free motoring the tyres must be in

1. good condition, the walls and treads being free of cuts, stones and abrasions.
2. treads must not be excessively worn, tread pattern should still be visible over the entire tread surface.
3. the tyres should not be retreaded or regrooved.
4. the tyre pressures should be as shown in specification chart.
5. ensure front and rear tyre pairs have comparable wear.

SUGGESTED GUIDE FOR CHECKING HOT TYRES—

As a guide for checking warm/hot tyre "under all conditions", allow pressure to read 4 psi (30 kPa) above that recommended for cold tyre.

Tyre Traction

CAUTION: A decrease in driving, cornering, and braking traction occurs when water, snow, ice, gravel, or other material is on the road surface. Driving practices and vehicle speed should be adjusted to the road conditions.

When driving on wet or slushy roads, it is possible for a wedge of water to build up between the tyre and road surface. This phenomenon, known as hydro-planing, may cause partial or complete loss of traction, which adversely affects vehicle control and stopping ability. To reduce the possibility of traction loss, the following precautions should be observed:

1. Reduce speed levels during rainstorms or when roads are slushy and if the road has standing water or puddles.
2. Replace tyres when tread wear indicators are visible.
3. Check that tyres are properly inflated for vehicle loading.

Tyre Damage and Repair

Tyres with cuts, splits or cracks deep enough to expose the fabric, should be replaced. Bulges also indicate internal damage, and these tyres should also be replaced. Tyres with doubtful damage should be removed from the wheel and examined by a competent person.

If a pressure loss occurs while driving, do not attempt to drive on the deflated tyre more than is necessary to stop safely. Driving even a short distance on a deflated tyre can damage it beyond repair.

When puncturing objects are removed, repairs will have to be made according to the recommendations of the tyre manufacturer.

It should always be remembered that a tyre which has been repaired will not be able to be operated safely at the rated maximum speed and due care should be taken.

Replacement Wheels

When replacing wheels for any reason, care should be taken to ensure that the wheels are equivalent to those removed in diameter, rim width and offset.

Owner's Responsibility

Normal maintenance services, as listed in the servicing schedule contained on pages 95 and 96 in this book, and replacement of service items, are the responsibility of the Owner and such are NOT considered, under the provisions of the New Vehicle Warranty, to be rectification of defects in material and workmanship.

Items such as wheel alignment, brake adjustment as a result of lining wear, etc., which may require servicing due to fair wear and tear, will be carried out at the owner's cost.

We strongly recommend that you read the Warranty Certificate at the front of the Owner handbook so that you are conversant with your entitlements.

Water and atmospheric conditions, varying road surfaces, individual driving habits and vehicle usage, greatly contribute to the need for constant maintenance services to promote efficient vehicle operation. (Refer over.)

IMPORTANT
Diesel Engines. It is the owner's responsibility to have the engine oil changed at 3 month/5,000 km intervals, under normal operating conditions.

Operating Conditions

Normal Conditions

The maintenance instructions contained in this publication are based on the assumption that the vehicle will be used as designed and is operated in accordance with the instruction provided in the owner handbook.

IMPORTANT

Diesel Engines. It is the owner's responsibility to have the engine oil changed at 3 month/5,000 km intervals, under normal operating conditions.

Extreme Conditions

Extreme operating can be described as that where a vehicle operates continually for a period of 1 month or 1000 kilometres under the following conditions:

1 Dust, dirt, loose road metal.
2 Muddy and wet areas.
3 Cold weather—below 10°C.
4 Stop-start, as experienced in inner city driving.
5 Caravan or Trailer hauling.

In such circumstances it is suggested that the following items be serviced more frequently than at the periods recommended in the Guardian Maintenance Plan.

Conditions	Items
1—3—4	Engine oil.
1	Engine oil filter.
1—2	Front suspension, steering, and parking brake system.
5	Automatic transmission fluid.
1	Engine air cleaner element.
2	Front wheel bearings.
2	Manual transmission, drive line joints and rear axle.

If at any time it is considered that the above items or other items should be more frequently serviced due to the type of operation or before a long trip, discuss the situation with the service manager of your GMH Dealer.

Maintenance Plan

The 3-Step Service Concept

The fundamental points are:

1. A basic service interval period of 6 months or 10 000 kilometres whichever occurs first.
2. A "step" principle of 3 correlated services.
3. The frequency of these services is:
   "A" service items — Serviced every 6 months or 10,000 km
   "B" service items — Serviced every 12 months or 20,000 km
   "C" service items — Serviced every 24 months or 40,000 km

Service Designation	—A—	—B—	—C—
Items	Group I *	Groups * I & II	Groups * I, II & III

Up to the 3rd step in the items programmed the earlier steps are included.

The total time/distance range of this Maintenance Schedule is 66 months or 110,000 kilometres.

* See pages 95 and 96 for group definitions.

Total Programme

Pre-Delivery Service
1 Month—1000 Kilometres
Inspection and Adjustment

Then as required: (Months — km)

A @ 6-10,000
B @ 12-20,000
A @ 18-30,000
C @ 24-40,000
A @ 30-50,000
B @ 36-60,000
A @ 42-70,000
C @ 48-80,000
A @ 54-90,000
B @ 60-100,000
A @ 66-110,000

IMPORTANT

Diesel Engines. It is the owner's responsibility to have the engine oil changed at 3 month/5,000 km intervals, under normal operating conditions.

Maintenance

Petrol & Diesel Engined Models

Once the first service has been completed, dependability and performance are influenced by the degree of maintenance the vehicle receives.

Safety, economy and dependability cannot be assured unless regular maintenance is performed, preferably by factory-trained technicians. It is preferable to receive these services from the Dealer from whom the vehicle was purchased. However, Maintenance will be attended to by any Authorised GMH Dealer on presentation of the Maintenance Plan Booklet, no matter where you may be situated.

What The Owner Should Do

When service, according to the time or distance interval, is due, the owner should present this Maintenance Plan Booklet to a GMH Dealer as an authority to have the items listed attended to. After this work is completed, the owner should see that the Validation Record is stamped and signed by the Dealer. The Booklet with the Validations completed is evidence that a vehicle has been adequately maintained . This is important as it will not only assist in the determination of Warranty Claims, but enhance the value of the vehicle whenever resale is contemplated.

What The Servicing Dealer Has To Do

Attend to all items listed for the particular service. When this has been done, it is most important that the Service Coupon Validation be signed by the Dealer or his representative.

All operations listed on the Service Coupons should be carried out following the procedures set out in the appropriate service manual.

The one month — 1000 kilometre service will be performed without cost for labour by the Selling Dealer.

This service may be carried out by another GMH Dealer provided you have a letter of introduction from the Selling Dealer. Your Dealer will supply the necessary letter of introduction upon request.

Maintenance Plan

GROUP I Under Hood Operations
Change engine oil. (Every 5000 km)
Check all fluid levels, accessible in engine compartment, e.g. brake coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
Wipe inside of distributor cap. (Petrol only)
Inspect engine air cleaner element for restriction and condition. Replace if necessary.
Check air pre-heat control for correct cold and hot operation.
Check operation of idle stop solenoid.
Check automatic choke for free operation.
First "A" Service Only. Check torque of carburettor mounting bolts. Check operation of EGR valve, where fitted.
Clean radiator core—check for blockages.
Drain and refill cooling system and recharge with anti-freeze.
First 'A' Service only. Air Conditioner. Check and if necessary adjust compressor drive belt using gauge. Check compressor mounting bolts for tightness. Inspect refrigerant hose connections for evidence of leaks, correct if necessary. Check operation of auxiliary cooling fan.
GROUP I Under Vehicle Operations
Change engine oil filter. (Every 10,000 km)
Check transmission oil level.
Check rear axle oil level.
Inspect and lubricate front suspension and steering joints.
Lubricate transmission shift and clutch linkages as applicable.
Check parking brake operation and lubricate system. Adjust if necessary.
Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage—brake and fuel lines, shock absorbers and mountings.
Inspect engine and transmission mountings.
Check and adjust clutch control pedal height.
Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
Inspect disc brake pads for wear.
First 'A' Service. Air Conditioner only. Check refrigerant charge at sight glass. Inspect refrigerant hose connections for evidence of leaks, correct if necessary. Check that condenser electric fan is operating.
All 'A' Services After the first
Check refrigerant charge at sight glass.
GROUP I Interior Vehicle Operations
Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
Seat belt inspection. Examine webbing condition, buckle operation and rectractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.
Inspect refrigerant hose connections for evidence of leaks, correct if necessary.
Check operations of blowers.
GROUP I Exterior Vehicle Operations
Lubricate door handle pivots, door hinges, striker bolts or plates and hood lock and catch as required.
Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors, seat adjustment.

Maintenance Plan

GROUP II

GROUP II Under Hood Operations
Lubricate distributor. Check condition of cap and rotor. Check TVRS cables for resistance. Replace spark plugs. Check ignition timing.
EGR System Only. Clean valve and manifold opening.
Auto Choke.* Check and adjust if necessary settings.
Check ignition timing, engine idle speed and fast idle speed on choke cam. Adjust if necessary.
Serviceable PCV Valves—Dismantle, clean and re-assemble. Disposable PCV Valves—Test and replace if necessary.
Clean or replace fuel filter as necessary.
Drain and refill cooling system. Add specified quantity of anti-freeze.
Inspect condenser to ensure that it is not clogged with leaves or other foreign material. Check evaporator drain tube for dirt or other restrictions.
Inspect flexible hose lines for leaks and brittleness.
GROUP II Under Vehicle Operations
Inspect rear brake linings and drums for wear. Wipe off dust. Check self-adjusting mechanism and parking brake adjustment.
Inspect front wheel bearings and check adjustment. Repack only if necessary.
Check steering box. Adjust if necessary.*
Check operation of transmission shift linkage. Adjust if necessary.
Inspect flexible hose lines for leaks and brittleness.

GROUP III

GROUP III Under Hood Operations
Replace air cleaner element if not yet changed in previous 24/40 period.
GROUP III Under Vehicle Operations
Repack front wheel bearings.
Inspect steering gear, linkage and dust covers for wear and security. Notify owner of any deficiencies, including loss of steering preload, for immediate rectification.

N.B. It should be understood that whenever a B or C service is being carried out, some items on an earlier operation, may be superseded or modified by a later operation.

Pre-Delivery Operations

✓	Under Hood Operations
	Oil levels of engine, brake master cylinders, and Battery Electrolyte level.
	Hose connections, fill radiator and windshield washer reservoir. Ensure anti-freeze is present in radiator.
	Air filter element.
	Air Conditioner only. Check and if necessary adjust compressor drive belt using gauge. Check compressor mounting bolts for tightness. Inspect refrigerant hose connections for evidence of leaks, correct if necessary. Check operation of auxiliary cooling fan.
	Under Vehicle Operations
	Oil, fuel, water and exhaust leaks.
	Lubrication and operation of steering gear from lock to lock, if excessive free travel evident, adjust steering.
	Oil levels in transmission, rear axle.
	Brake line connections—check hoses for correct clearance.
	Brakes—foot and park.
	Inspect tyres and inflate to recommended pressures. Check toe-in.
	Tighten wheel nuts to specified torque.
	Air Conditioner only. Check refrigerant charge at sight glass. Inspect refrigerant hose connections for evidence of leaks, correct if necessary. Check that condenser electric fan is operating.

✓	Interior of Vehicle
	Operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls.
	Heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Operation of all lights, including turn signals and hazard warning; C/A headlamp aim.
	Inspect body trim and instrument panel.
	Fit of floor mats and completely clean the interior of the vehicle.
	Inspect refrigerant hose connections for evidence of leaks, correct if necessary.
	Check operations of blowers.
	Exterior of Vehicle
	Wash vehicle, check paint, brush touch-up and minor repair as necessary and polish.
	Road Test
	Operation of seat belt emergency locking retractors.
	Road test for engine, braking, and steering performance, rattles and squeaks, **and correct if necessary.**
	Steering wheel spoke position.
	Clean steering wheel and control levers.
	Check Tool and Jack stowage.
	Check operation of locking hubs.

Mechanic's Signature ..... Date .....

New Vehicle Preparation Validation

Your new vehicle has been inspected and prepared for delivery by your Dealer, in accordance with the manufacturer's New Vehicle Pre-Delivery Procedures.

Service Manager's Signature .....

Date .....

P.T.O.

Delivery Certificate

The dealer has completed the vehicle identification certificate, explained to the purchaser the terms and conditions of the General Motors-Holden's Sales Pty Ltd, New Vehicle Warranty and Notices and the contents of the Owner's Handbook. The dealer has informed the purchaser of his responsibility in respect of vehicle maintenance.

The dealer has demonstrated to the purchaser the operation of the vehicle and of all options and accessories.

The purchaser has been informed in writing of the fitting of any and all equipment or accessories not of GMH manufacture, and of any alterations or modifications which have been made to the vehicle and the effect on the GMH Sales New Vehicle Warranty of such fitting, alteration or modification.

Vehicle delivered in accordance with this delivery procedure.

Purchaser's Signature .....

Date .....

Delivered by: Signature .....

Date .....

1 Month—1000 Kilometre Inspection and Adjustment

This coupon should not be removed until the vehicle is presented for service.

Owner's Name Mr. Mrs. Miss .....

Address .....

Town & State ..... Postcode .....

Reg. No. ..... Model Name .....

V.I.N. ..... Eng. No. .....

Selling Dealer's Stamp & Signature .....

Date of Acquisition .....

This vehicle has been thoroughly checked in accordance with the schedule on the reverse side of this coupon.

Servicing Dealer .....

Town ..... State .....

Owner's Signature .....

Date ..... Odometer Reading .....

Service Manager's Signature .....

Dealer .....

This vehicle has been thoroughly checked in accordance with the 1 month—1000 kilometre inspection and adjustment.

1 Month—1000 Kilometre Inspection and Adjustment

1 Month—1000 Kilometre Inspection and Adjustment

Under Hood Operations
Change Engine Oil and Filter Element.
Check all Fluid Levels accessible in Engine Compartment.
Check Manifold Mounting Nuts and Cylinder Head Bolts Tightening Torque.
Adjust Valve Clearances.
Check Air Cleaner Element for Restriction under Extreme Dusty conditions.
Check all Hose Clips in Engine Compartment.
Check Condition and Tension of all Engine Drive Belts—using Tension Gauge.
Check and Adjust Hood Lock and Safety Catch and Lubricate.
Under Vehicle Operations
Lubricate Front Suspension, (Ball and Steering Joints—where applicable).
Check Transmission and Rear Axle Oil levels.
Inspect all Brake Line Connections and Hoses for Leakage and Clearance.
Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and wheel nut tightening torque.
Check Steering Connections.
Check and Adjust Clutch Control Pedal Height.
Interior Vehicle Operations
Check operation of Instruments, Lights, Hazard Warning, Turn signals, Horn, Windshield Wipers and Washers, Seat Belts, Seat Adjustment Mechanisms and Mirrors.
Check Operation of Parking Brake.
Exterior Vehicle Operations
Check Headlamp Aim, Adjust if necessary.
Check Door Lock Operation, Striker Plates, Handles, etc. and Lubricate.
Road Test Programme
All Rattles, Squeaks, Vibrations and Noises should be checked and rectified.
Check vehicle on the road for even braking and steering, transmission operation, engine response and parking brake operation. Check mirrors and seat adjustment.

Additional Service—refer page 123.

This Inspection and Adjustment will be carried out without charge to the owner except for any lubricants, etc. used. The Designated Servicing Programme is not to be exceeded without the Owner's prior agreement to additional servicing charges.

Dealer .....
Date .....
Odometer .....
Signed .....

A SERVICE

6 Months — 10,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake, coolant, washer, battery electrolyte.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Drain fuel filter (Diesel) and clean fuel pump strainer.
	Wipe inside of distributor cap.
	Inspect engine air cleaner element for restriction and condition. Replace if necessary after testing.
	Check air pre-heat control assembly for correct cold and hot setting.
	Check operation and setting of idle stop solenoid.
	Check torque of carburettor mounting bolts.
	Clean radiator core — check for blockages.
	Check cooling system anti-freeze concentration.
	Change transmission lubricant.
	Change rear axle lubricant.
*	Air Conditioner. Check and if necessary adjust compressor drive belt using gauge. Check compressor mounting bolts for tightness. Inspect refrigerant hose connections for evidence of leaks, correct if necessary. Check operation of auxiliary cooling fan.

	Under Vehicle Operations
	Change engine oil filter.
	Inspect and lubricate front suspension and steering joints. (Chassis lubrication as chart)
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage — brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings.
	Check and adjust clutch fork operating rod free travel.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
*	Air Conditioner. Check refrigerant charge at sight glass. Inspect refrigerant hose connections for evidence of leaks, correct if necessary. Check that condenser electric fan is operating.

P.T.O.

	Interior Vehicle Operations
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.
*	Inspect refrigerant hose connections for evidence of leaks, correct if necessary.
*	Check operations of blowers.

	Exterior Vehicle Operations
	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and park brake operation. Check mirrors and seat adjustment.

Additional Service—refer page 123.

12 Months — 20,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Adjust valve clearance.
	Check tightness of manifold and cylinder head bolts.
	Lubricate distributor. Check condition of points, cap and rotor. Wipe inside of distributor cap. Check TVRS cables for resistance. Replace spark plugs.
	EGR System Only— Clean valve and manifold opening.
	Check operation of exhaust heat manifold valve for free operation.
	Clean engine ventilation filter with kerosene. Inspect engine air cleaner element for restriction and condition. Replace if necessary after testing.
	Auto Choke — Check and adjust if necessary settings. Check and adjust if necessary fast idle speed on choke cam. Check choke for free operation.
	Check air pre-heat control assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Replace fuel filter.
	Drain and refill cooling system. Add specified quantity of anti-freeze. Clean radiator care — check for blockages.
*	Inspect condenser to ensure that it is not clogged with leaves or other foreign material. Check evaporator drain tube for dirt or other restrictions.
*	Inspect flexible hose lines for leaks and brittleness.
	Under Vehicle Operations
	Change engine oil filter.
	Check transmission oil level.
	Check rear axle oil level.
*	Inspect flexible hose lines for leaks and brittleness.

P.T.O.

B Service

	Inspect and lubricate front suspension and steering joints and steering gear (see chassis lubrication chart).
	Inspect steering gear, linkage and dust covers for wear and security. Notify owner of any deficiencies, including loss of steering preload, for immediate rectification.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage — brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings. Check and adjust clutch fork operating rod free travel.
	Check operation of transmission shift linkage. Adjust if necessary.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
	Inspect rear brake linings and drums for wear. Wipe off dust. Check self-adjusting mechanism and parking brake adjustment.
	Inspect front wheel bearings and check adjustment. Repack only if necessary.
	Check steering box and adjust if necessary.

	Interior Vehicle Operations
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.
*	*Wagon Only— Check rear seat movement and lock operation.

	Exterior Vehicle Operations
	Lubricate door handle pivots, door hinges, door slide mechanism, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

*Additional Service—refer page 123.

18 Months or 30,000 km

Dealer .....

Date .....

Odometer .....

Signed .....

A SERVICE

18 Months — 30,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake, coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Replace fuel filter element (diesel).
	Wipe inside of distributor cap.
	Check operation of exhaust heat manifold valve for free operation.
	Inspect engine air cleaner element for restriction and condition. Replace if necessary after testing.
	Check air pre-heat control damper assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Check automatic choke for free operation.
	Clean radiator core — check for blockages.
	Drain and refill cooling system and recharge with anti-freeze.

	Under Vehicle Operations
	Change engine oil filter.
	Check transmission oil level.
	Check rear axle oil level.
	Inspect and lubricate front suspension and steering joints.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage — brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings.
	Check and adjust clutch fork operating rod free travel.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
*	Check refrigerant charge at sight glass.

P.T.O.

	Interior Vehicle Operations
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.
*	*Wagon Only— Check rear seat movement and lock operation.
*	Inspect refrigerant hose connections for evidence of leaks, correct if necessary.
*	Check operations of blowers.

	Exterior Vehicle Operations
	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

*Additional Service—refer page 123.

24 Months — 40,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake coolant, washer and battery electrolyte.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Lubricate distributor. Check condition of points, cap and rotor. Wipe inside of distributor cap. Check TVRS cables for resistance. Replace spark plugs.
	EGR System Only— Clean valve and manifold opening.
	Check operation of exhaust heat manifold valve for free operation.
	Replace air cleaner element.
	Auto Choke — Check and adjust if necessary settings. Check and adjust if necessary fast idle speed on choke cam. Check choke for free operation.
	Adjust valve clearance.
	Check tightness of manifold and cylinder head bolts.
	Replace deceleration sensing valve.
	Check air pre-heat control assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Check and adjust if necessary engine idle speed.
	Serviceable PCV Valves — Dismantle, clean and reassemble. Disposable PCV Valves — Test and replace if necessary.
	Clean or replace fuel filter as necessary.
	Drain and refill cooling system. Add specified quantity of anti-freeze. Clean radiator core — check for blockages.
	Evaporative control system. Check all fuel and vapour lines and hoses for proper connections and correct routing as well as condition. Remove canister and check for cracks or damage. Replace damaged or deteriorated parts as necessary. Replace filter.

	Under Vehicle Operations
	Change engine oil filter.
	Change lubrication in transmission.
	Change rear axle lubrication.
	Inspect and lubricate front suspension and steering joints.

P.T.O.

	Inspect steering gear, linkage and dust covers for wear and security. Notify owner of any deficiencies, including loss of steering preload, for immediate rectification.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage — brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings.
	Check and adjust clutch fork operating rod free travel.
	Check operation of transmission shift linkage. Adjust if necessary.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
	Inspect rear brake linings and drums for wear. Wipe off dust. Check self-adjusting mechanism and parking brake adjustment.
	Repack front wheel bearings.
	Check steering box and adjust if necessary.

	Interior Vehicle Operations
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.

	Exterior Vehicle Operations
	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

*Additional Service—refer page 123.

30 Months or 50,000 km

Dealer .....

Date .....

Odometer .....

Signed .....

A SERVICE

30 Months — 50,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake, coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Replace fuel filter (diesel).
	Wipe inside of distributor cap.
	Check operation of exhaust heat manifold valve for free operation.
	Inspect engine air cleaner element for restriction and condition. Replace if necessary after testing.
	Check air pre-heat control damper assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Check automatic choke for free operation.
	Clean radiator core — check for blockages.
	Drain and refill cooling system and recharge with anti-freeze.

	Under Vehicle Operations
	Change engine oil filter.
	Check transmission oil level.
	Check rear axle oil level.
	Inspect and lubricate front suspension and steering joints.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage — brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings.
	Check and adjust clutch fork operating rod free travel.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
*	Check operations of blowers.

P.T.O.

	Interior Vehicle Operations
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.
*	Inspect refrigerant hose connections for evidence of leaks, correct if necessary.
*	Check operations of blowers.

	Exterior Vehicle Operations
	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

Additional Service—refer page 123.

36 Months — 60,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5,000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Adjust valve clearance.
	Check tightness of manifold and cylinder head bolts.
	Change steering gear lubricant.
	Lubricate distributor. Check condition of points, cap and rotor. Wipe inside of distributor cap. Check TVRS cables for resistance. Replace spark.
	EGR System Only— Clean valve and manifold opening.
	Check operation of exhaust heat manifold valve for free operation.
	Inspect engine air cleaner element for restriction and condition. Replace if necessary after testing.
	Auto Choke Check and adjust if necessary settings. Check and adjust if necessary fast idle speed on choke cam. Check choke for free operation.
	Check air pre-heat control assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Check and adjust if necessary engine idle speed.
	Serviceable PCV Valves — Dismantle, clean and reassemble. Disposable PCV Valves — Test and replace if necessary.
	Clean or replace fuel filter as necessary.
	Drain and refill cooling system. Add specified quantity of anti-freeze. Clean radiator core — check for blockages.
*	Inspect condenser to ensure that it is not clogged with leaves or other foreign material. Check evaporator drain tube for dirt or other restrictions.
*	Inspect flexible hose lines for leaks and brittleness.
	Under Vehicle Operations
	Change engine oil filter.
	Check transmission oil level.
	Check rear axle oil level.
	Inspect and lubricate front suspension and steering joints.
	Inspect steering gear, linkage and dust covers for wear and security. Notify owner of any deficiencies, including loss of steering preload, for immediate rectification.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
*	Inspect flexible hose lines for leaks and brittleness.

P.T.O.

	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage — brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings
	Check and adjust clutch fork operating rod free travel.
	Check operation of transmission shift linkage. Adjust if necessary.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
	Inspect rear brake linings and drums for wear. Wipe off dust. Check self-adjusting mechanism and parking brake adjustment.
	Inspect front wheel bearings and check adjustment. Repack only if necessary.
	Check steering box and adjust if necessary.

Interior Vehicle Operations

	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.

Exterior Vehicle Operations

	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

Additional Service—refer page 123.

42 Months or 70,000 km

Dealer .....

Date .....

Odometer .....

Signed .....

A SERVICE

42 Months — 70,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake, coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Change fuel filter (diesel).
	Wipe inside of distributor cap.
	Check operation of exhaust heat manifold valve for free operation.
	Inspect engine air cleaner element for restriction and condition. Replace if necessary after testing.
	Check air pre-heat control damper assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Check automatic choke for free operation.
	Check torque of carburettor mounting bolts. Check operation of EGR valve, where fitted.
	Clean radiator core—check for blockages.
	Drain and refill cooling system and recharge with anti-freeze.
	Under Vehicle Operations
	Change engine oil filter.
	Check transmission oil level.
	Check rear axle oil level.
	Inspect and lubricate front suspension and steering joints.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage—brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings.
	Check and adjust clutch fork operating rod free travel.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
*	Check refrigerant charge at sight glass.

P.T.O.

	Interior Vehicle Operations
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.
*	Inspect refrigerant hose connections for evidence of leaks, correct if necessary.
*	Check operations of blowers.

	Exterior Vehicle Operations
	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

*Additional Service—refer page 123.

48 Months or 80,000 km

Dealer .....

Date .....

Odometer .....

Signed .....

SERVICE

48 Months — 80,000 Kilometres Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Replace deceleration sensing valve.
	Lubricate distributor. Check condition of points, cap and rotor. Wipe inside of distributor cap. Check TVRS cables for resistance. Replace spark.
	EGR System Only— Clean valve and manifold opening.
	Check operation of exhaust heat manifold valve for free operation.
	Replace air cleaner element if not yet changed in previous 24/40 period.
	Auto Choke— Check and adjust if necessary settings. Check and adjust if necessary fast idle speed on choke cam. Check choke for free operation.
	Check air pre-heat control damper assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Check and adjust if necessary engine idle speed.
	Serviceable PCV Valves—Dismantle, clean and reassemble. Disposable PCV Valves—Test and replace if necessary.
	Clean or replace fuel filter as necessary.
	Drain and refill cooling system. Add specified quantity of anti-freeze. Clean radiator core — check for blockages.
	Evaporative control system. Check all fuel and vapour lines and hoses for proper connections and correct routing as well as condition. Remove cannister and check for cracks or damage. Replace damaged or deteriorated parts as necessary. Replace filter.

	Under Vehicle Operations
	Change engine oil filter.
	Change lubrication in transmission.
	Change rear axle lubrication.
	Inspect and lubricate front suspension and steering joints.
	Inspect steering gear, linkage and dust covers for wear and security. Notify owner of any deficiencies, including loss of steering preload, for immediate rectification.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.

P.T.O.

	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage—brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings.
	Check and adjust clutch fork operating rod free travel.
	Check operation of transmission shift linkage. Adjust if necessary.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
	Inspect rear brake linings and drums for wear. Wipe off dust. Check self-adjusting mechanism and parking brake adjustment.
	Repack front wheel bearings.
	Check steering box and adjust if necessary.

Interior Vehicle Operations	
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.
Exterior Vehicle Operations	
	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

*Additional Service—refer page 123.

54 Months or 90,000 km

Dealer .....

Date .....

Odometer .....

Signed .....

A SERVICE

54 Months — 90,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake, coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Wipe inside of distributor cap.
	Check operation of exhaust heat manifold valve for free operation.
	Inspect engine air cleaner element for restriction and condition. Replace if necessary after testing.
	Check air pre-heat control damper assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Check automatic choke for free operation.
	Check torque of carburettor mounting bolts. Check operation of EGR valve, where fitted.
	Clean radiator core—check for blockages.
	Drain and refill cooling system and recharge with anti-freeze.
	Under Vehicle Operations
	Change engine oil filter.
	Check transmission oil level.
	Check rear axle oil level.
	Inspect and lubricate front suspension and steering joints.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage—brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings.
	Check and adjust clutch fork operating rod free travel.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
*	Check refrigerant charge at sight glass.

P.T.O.

	Interior Vehicle Operations
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiences observed for immediate rectification.
*	Inspect refrigerant hose connections for evidence of leaks, correct if necessary.
*	Check operations of blowers.

	Exterior Vehicle Operations
	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

Additional Service—refer page 123.

60 Months — 100,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Lubricate distributor. Check condition of points, cap and rotor. Wipe inside of distributor cap. Check TVRS cables for resistance. Replace spark.
	EGR System Only— Clean valve and manifold opening.
	Check operation of exhaust heat manifold valve for free operation.
	Inspect engine air cleaner element for restriction and condition. Replace if necessary after testing.
	Auto Choke— Check and adjust if necessary settings. Check and adjust if necessary fast idle speed on choke cam. Check choke for free operation.
	Check air pre-heat control damper assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Check and adjust if necessary engine idle speed.
	Serviceable PCV Valves — Dismantle, clean and reassemble. Disposable PCV Valves — Test and replace if necessary.
	Clean or replace fuel filter as necessary.
	Drain and refill cooling system. Add specified quantity of anti-freeze. Clean radiator core — check for blockages.
*	Inspect condenser to ensure that it is not clogged with leaves or other foreign material. Check evaporator drain tube for dirt or other restrictions.
*	Inspect flexible hose lines for leaks and brittleness.
	Under Vehicle Operations
	Change engine oil filter.
	Check transmission oil level.
	Check rear axle oil level.
	Inspect and lubricate front suspension and steering joints.
	Inspect steering gear, linkage and dust covers for wear and security. Notify owner of any deficiencies, including loss of steering preload, for immediate rectification.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
	Check parking brake operation and lubricate system. Adjust if necessary.
*	Inspect flexible hose lines for leaks and brittleness.

60 Months or 100,000 km

Dealer .....

Date .....

Odometer .....

Signed .....

B SERVICE

B Service

	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage — brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings.
	Check and adjust clutch fork operating rod free travel.
	Check operation of transmission shift linkage. Adjust if necessary.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
	Inspect rear brake linings and drums for wear. Wipe off dust. Check self-adjusting mechanism and parking brake adjustment.
	Inspect front wheel bearings and check adjustment. Repack only if necessary.
	Check steering box and adjust if necessary.

	Interior Vehicle Operations
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.

	Exterior Vehicle Operations
	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

*Additional Service—refer page 123.

66 Months or 110,000 km

Dealer .....

Date .....

Odometer .....

Signed .....

A SERVICE

66 Months — 110,000 Kilometre Service

	Under Hood Operations
	Change engine oil. (Every 5000 km)
	Check all fluid levels accessible in engine compartment, e.g. brake, coolant, washer, battery electrolyte, auto transmission, power steering reservoir.
	Inspect condition and adjust tension of all engine drive belts. Adjust if necessary using gauge.
	Inspect condition and attachment of all hoses in engine compartment, including all emission systems pipes and connections.
	Wipe inside of distributor cap.
	Check operation of exhaust heat manifold valve for free operation.
	Inspect engine air cleaner element for restriction and condition. Replace if necessary after testing.
	Check air pre-heat control damper assembly for correct cold and hot operation.
	Check operation and setting of idle stop solenoid.
	Check automatic choke for free operation.
	Check torque of carburettor mounting bolts. Check operation of EGR valve, where fitted.
	Clean radiator core — check for blockages.
	Drain and refill cooling system and recharge with anti-freeze.

	Under Vehicle Operations
	Change engine oil filter.
	Check transmission oil level.
	Check rear axle oil level.
	Inspect and lubricate front suspension and steering joints.
	Lubricate accelerator, transmission shift and clutch linkages as applicable.
	Check parking brake operation and lubricate system. Adjust if necessary.
	Inspect exhaust system and adjacent body areas for open seams or damage. Inspect for leaks and damage — brake and fuel lines, shock absorbers and mountings.
	Inspect engine and transmission mountings.
	Check and adjust clutch fork operating rod free travel.
	Inspect tyres for irregular wear or damage and advise owner, if necessary, of any corrective maintenance required. Check inflation pressures and torque wheel nuts.
	Inspect disc brake pads for wear.
*	Check refrigerant charge at sight glass.

P.T.O.

	Interior Vehicle Operations
	Check operation of all warning indicators, ignition steering lock, brake and park brake lights and interior electrical system items and controls. Check all internal lights.
	Check heating, ventilation and demisting system ducts are clear and operation is satisfactory and controls correctly adjusted.
	Seat belt inspection. Examine webbing condition, buckle operation and retractor mechanism function. Notify owner of any deficiencies observed for immediate rectification.
*	Inspect refrigerant hose connections for evidence of leaks, correct if necessary.
*	Check operations of blowers.

	Exterior Vehicle Operations
	Lubricate door handle pivots, door hinges, striker bolts or plates, hood catch and side and rear door locks.
	Check vehicle on the road for even braking and steering, transmission operation, engine response and handbrake operation. Check mirrors and seat adjustment.

*Additional Service—refer page 123.

Suggested Labour Times

For Work Performed during Maintenance Services

"A" SERVICE — BASIC SERVICE TIME — 1.6 HR.

"B" SERVICE — BASIC SERVICE TIME — 2.5 HR.

"C" SERVICE — BASIC SERVICE TIME — 3.8 HR.

THE OWNER WILL BE CHARGED FOR LUBRICATIONS AND MATERIALS USED PLUS LABOUR.
AT THE TIMES RECOMMENDED ABOVE.

*** ADDITIONS TO BASIC SERVICE**

ADDITIONAL TIME AND MATERIAL REQUIRED FOR SERVICING OPTIONAL EQUIPMENT OTHER THAN THAT FITTED TO A BASIC VEHICLE AND REPAIRING OR REPLACING ANY PART FOUND FAULTY DURING THE SERVICE CHECK AND INSPECTION, WILL BE ADDED TO THE SUGGESTED LABOUR TIME AND CHARGES.

WHERE ANY DEFICIENCIES ARE NOTED SUCH ITEMS SHOULD BE REPORTED TO THE OWNER/OPERATOR SO THAT THE EXTRA WORK REQUIRED CAN BE AUTHORISED.

*** ADDITIONAL SERVICES & TIMES WHERE APPLICABLE:**

FIRST "A" SERVICE	0.2 HR.
FRONT WHEEL BEARING REPACK	
— "B" SERVICE	0.5 HR.
— "C" SERVICE	0.6 HR.

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